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ABSTRACT

The Appalachian Education Satellite Project (AESP) was created to demonstrate the feasibility of conducting graduate level courses for teachers in isolated regions using communication satellites. One of the AESP's four projects was an eight session career education series for 234 elementary school teachers given at 15 sites throughout the Appalachian region. The conclusions reached were: (1) teachers demonstrated a significant gain in the cognitive area; (2) teachers indicated a significant change in attitude toward career education; (3) teachers felt the course provided them with more useful information than a campus education course; and (4) teachers are continuing to use the career education techniques they learned in their own classrooms. The appendixes cover course outline, lab materials, and various questionnaires used in the formative evaluation process. (NR)

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STUDENT ACHIEVEMENT:

CAREER EDUCATION IN THE ELEMENTARY SCHOOL, SUMMER, 1974

Technical Report No. 9

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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August, 1975

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The purpose of this series is to document and disseminate information about the design, implementation and results of the AESP experiment.

William J. Bramble and Cathy Whitton

Editors

TECHNICAL REPORT SERIES #1 - 12

1. AESP Data Base Information: Rationale, Data Collection Procedure, Interpretation of Results. Prepared by William J. Bramble, Claudine Ausness, Larry Harding and Robert Wetter. Winter 1973.

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4. The Evaluation Design: Summer Courses, 1974. Prepared by William J. Bramble, Claudine Ausness, Robert Wetter and Larry Harding. December, 1974.

5. Performance of AESP Transmission/Reception Equipment (Summer and Fall, 1974). Prepared by William J. Bramble, Claudine Ausness and James R. Freeman. July, 1975.

6. Student Ratings of Instructional Activities: Diagnostic and Prescriptive Reading Instruction, Summer, 1974. Prepared by Rodger Marion, William J. Bramble, Robert Wetter and Cathy Whitton. July, 1975.

7. Student Ratings of Instructional Activities: Career Education in the Elementary Grades, Summer, 1974. Prepared by Larry Harding, William J. Bramble and Rodger Marion. August, 1975.

8. Student Achievement: Diagnostic and Prescriptive Reading Instruction Course, Summer, 1974. Prepared by William J. Bramble, Rodger Marion and Claudine Ausness. August, 1975.

9. Student Achievement: Career Education in the Elementary Grades, Summer, 1974. Prepared by Rodger Marion, William J. Bramble and Claudine Ausness. August, 1975.

10. Cost Estimation Model for Alternative Course Formats and Delivery Modes. Prepared by William J. Bramble and Claudine Ausness. September, 1975.

11. Summative Evaluation of Career Education in the Secondary School Course, Fall, 1974. Prepared by Diane Maynard, Rodger Marion and William J. Bramble. September, 1975.

12. Summative Evaluation of Diagnostic and Prescriptive Reading Instruction K-6 Course, Spring, 1975. Prepared by William J. Bramble, Diane Maynard and Rodger Marion. September, 1975.

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INTRODUCTION

In this report are described the cognitive, affective, and behavioral changes that were produced in students who took a course in career education during the summer of 1974. The course, entitled Career Education in the Elementary School, was produced by the Appalachian Education Satellite Project for television broadcast via satellite to sites throughout the Appalachian region. The results of pre-post-gain analyses on achievement, attitude and classroom practices variables are presented and described in terms of the overall course goals.

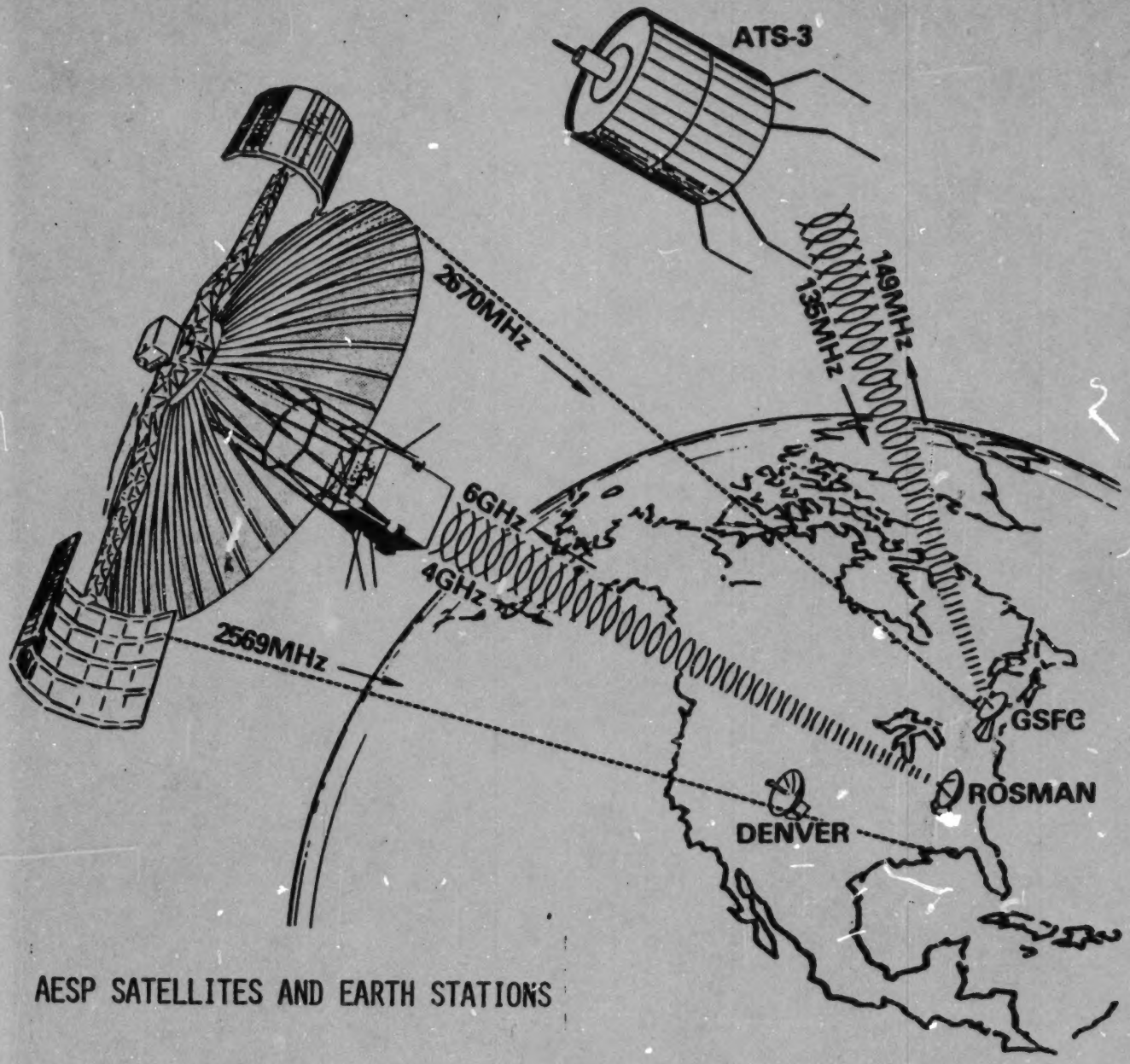
The Appalachian Education Satellite Project (AESP) was begun in June, 1973, with a grant from the National Institute of Education to the Appalachian Regional Commission (ARC). The purpose of the project was to demonstrate the feasibility of conducting graduate level courses for teachers in isolated regions using sophisticated NASA communications satellites. The four courses developed for this project were in the areas of career education and reading instruction. All software for the courses was developed at the Resource Coordinating Center (RCC), located on the campus of the University of Kentucky in Lexington, Kentucky.

A total of four courses, two in reading and two in career education, were scheduled to be conducted by satellite between June, 1974 and June, 1975. The course participants were approximately 1200 teachers (300 per course)

gathered at classroom sites at 15 different locations in the Appalachian Region. The sites were located in eight different states, from Alabama to New York, and were grouped into sets of three, a main site and two ancillary sites. Each main site and its two ancillary sites composed a RESA triangle. The main site in each of the five triangles was able to receive audio and video signals from the RCC transmitted by the ATS-6 satellite; too, each main site could receive and send voice or teletype signals to or from the RCC and other main sites by the ATS-3 satellite. A picture of the ATS satellites is presented on the following page. Ancillary sites could receive audio and video signals from the RCC transmitted by ATS-6. However, ancillary sites could not receive or transmit via ATS-3; therefore, the ancillary sites relied on telephone communication with the main site to relay information to the RCC. All sites were equipped with a color television monitor and had adequate seating for 20 students.

The monitoring of classroom sites and many other project-related tasks conducted at the local level were the responsibility of project staff members, called site coordinators, employed by the participating Regional Education Service Agencies (RESAs) affiliated with the Appalachian Regional Commission. A full description of the duties of the site coordinator can be found in AESP Technical Report #2 (Ausness and Bowling, 1974).

The Career Education in the Elementary School (CEE) Course was conducted using the two NASA satellites during the summer of 1974. The course was designed so that high quality instruction and the opportunity for student interaction with content experts was possible; however, it was not necessary for an expert in career education instruction to be on-site during



AESP SATELLITES AND EARTH STATIONS

class meetings. The course consisted of twelve half-hour color videotaped lessons; twelve associated audio review segments (one for each videotaped lesson); laboratory activities, unit tests, and related reading materials; to correspond with each videotaped lesson; and four forty-five minute live, interactive televised seminar programs, interspersed at various intervals during the course.

Developed by the staff of the AESP, this course surveyed the major principles, concepts, and practices of career education in an elementary school setting. Experiences were offered the teachers which enabled them to develop career education units which could be infused into their academic subject areas at the appropriate grade level. It was hoped that, as a result of this course, the participating teachers would be able to alert their school staffs to the need for career education and be able to serve as leaders in planning and implementing career education programs in classrooms, schools, or school systems.

Every effort was made, within the time frame of the production schedule, to involve teachers, administrators, and other school personnel as well as cooperating faculty at various universities and colleges in the Appalachian region in the planning and development of the course. The hope was to make the course particularly responsive to the needs and interests of teachers in the region. Graduate credit was made available to the course participants at the University of Kentucky and at a number of cooperating universities in the region.

The CEE course activities were structured around the twelve half-hour color videotaped programs, in that a prescribed set of learning activities was developed to supplement each broadcast or "lesson."

However, the inclusion of the four, forty-five-minute live, interactive televised seminar programs made a total of 16 broadcasts in all. The time period for each class session was such that two lessons could be covered in one class session; therefore, each class met eight times and finished 16 lessons in completing the course.

The sequence followed in completing each lesson was as follows: the pre-program preparation, the television program (or seminar), the audio review, the laboratory activities and associated readings, and the evaluation activities.

The half-hour videotaped lessons can best be described as studio-based presentations by the course instructor, heavily supported by graphics and filmed materials including classroom scenes and interviews with various professionals in the field of career education. A course outline is included in Appendix 1, Item A. A picture of the television reception equipment and participants watching one of the programs is presented on the next page.

The pretaped audio review segments consisted of four to five four-choice multiple choice questions. The following procedure was used in completing the audio review. Each question and the four alternative answers were presented simultaneously on four audio tracks. The student then selected one of the four audio tracks corresponding to what he believed the correct answer to be. An explanation of the correctness or incorrectness of the answer was contained on the track selected by the student. The questions were selected to reinforce and expand upon the material presented in the videotaped program just viewed. Since there were four

tracks and the series of questions was presented in rigid serial order, the activity was similar to programmed instruction in that branching was possible within questions. However, branching between questions was not possible. Special equipment for the four-channel audio instruction including the student response selectors and electronic equipment for automatically recording answers is described in AESP Technical Report #5 (Bramble, Ausness, and Freeman, 1975).

The live, interactive seminars were structured in the following way. The course instructor served as moderator for a panel of professionals in the field of career education instruction. A picture of an in-progress seminar is presented on the next page. Questions about the subject matter of the course were transmitted from the main classroom sites to the Lexington, Kentucky studio via teletype transmission using ATS-3. Thus, hard copy was immediately available for the questions. Questions from ancillary sites were teletyped via telephone lines to the associated main site and then to Lexington via ATS-3 radio link (see photograph of site coordinator transmitting seminar questions by VHF system). Questions were screened to minimize redundancy and passed to the seminar monitor to be posed to the guests. Questions were identified by classroom site as they were read over the air.

The laboratory activities were conducted during the latter portion of each class session, after viewing the TV program and completing the audio review. The lab activities were designed to expand upon and tie together the various activities composing the instructional sequence.

Readings, game activities, and discussion groups were prominent techniques used in the lab activities. Too, the lab sessions provided instruction in the use of the various information systems made available to course participants and provided time for participants to use other on-site reference materials. Appendix 1, Item B contains a summary of the laboratory activities conducted for each class session.

The major project objective of delivering the course via satellite was achieved with minor exceptions. There were a few equipment malfunctions at individual classroom sites which precluded the viewing of several programs. Videotapes and other materials were made available to students at these sites to make up the class activities missed. The major equipment problem concerned the audio review equipment; in that it was delivered late. In fact, the equipment was available to students for fewer than half of the latter programs; therefore, printed scripts were substituted for a majority of the programs. The transmission and reception (and general equipment) successes and failures are detailed in AESP Technical Report #5 (Bramble, et al., 1975).

Data were collected regarding a variety of characteristics of the course. Attitudinal responses to the various learning activities, the delivery system, and the equipment were collected from course participants, site monitors, and cooperating university consultants who visited the sites occasionally. Results from these data are summarized and reported in AESP Technical Report #7 (Harding, Bramble, and Marion, 1975). This report focuses on other data and other questions. The primary question under consideration are:

1) Did the course participants demonstrate mastery of the course objectives?

2) Were the course activities and materials more effective at facilitating mastery of some of the course objectives than others?

3) Did the attitudes of the participants toward the instructional strategies and materials included in the course change in the intended direction?

4) Did the participants feel that the instructional activities provided them with useful and valuable information?

5) Did the course participants use the strategies and materials presented in the course in their own classrooms?

Insofar as it is possible to do so, this report will provide answers to the above five questions. Presented in the report are the results of pre and post and unit achievement testing, pre and post testing of attitudes toward the course objectives, and pre-course and follow-up measurement of teaching practices related to career education instruction.

METHOD

Subjects

There were 250 students enrolled in the Career Education course and 234 who completed the course. The number of students at each site 1) who responded to the Background Questionnaire, and 2) who completed the course is presented in Table 1.

TABLE 1

NUMBER OF STUDENTS IN CEE COURSE BY SITES

Sites	Frequency Completing Background Questionnaire	Frequency Completing Course
11 Fredonia, N.Y.	20	20
12 Olean, N.Y.	14	16
13 Edinboro, PA.	17	17
21 Lafollette, TN.	18	19
22 Coalfield, TN.	19	17
23 Johnson City, TN.	8	5
31 Norton, VA.	18	16
32 Sticklyville, VA.	20	19
33 Boone, N.C.	15	16
41 Cumberland, MD.	21	20
42 Keyser, W.V.	19	19
43 McHenry, MD.	20	19
51 Huntsville, AL.	12	11
52 Guntersville, AL.	14	12
53 Rainsville, AL.	11	8
Total	246	234

A summary of background information on the students is presented in Table 2. A copy of the Confidential Background Questionnaire may be found in Technical Report #4 (Bramble et al., 1974, p. 87). From this table it may be seen that the students were typically female elementary school teachers, in their middle thirties, who lived in a rural area. They had on the average nine years of teaching experience, and usually a master's degree. Although the majority had not had a course in Career Education; 37 students reported some experience in teaching career education concepts. Some of the students were counselors and principals. However, of those who were not teachers, most were graduate students or workers in local educational service agencies.

Measurement Instruments Used and Administration Procedures

The course was intended to produce cognitive and affective changes in the participants. To measure the cognitive growth, summative pre/post-tests were developed that sampled from the total domain of the course content. Also, unit pre-posttest that sampled from the domain of one unit of instruction were developed for each unit in the course. To measure the affective growth due to the course, a Likert scale rating instrument that sampled from a domain of the expected desirable attitudes was developed. In order to measure the effects of the course on the teaching practices and methods used by the participants before and after instruction, a questionnaire that sampled from a domain of desirable teaching practices was developed. Also, a sample of the participants responded to a multiple choice and open-ended response questionnaire regarding their overall evaluation of the

TABLE 2

SUMMARY BACKGROUND INFORMATION FOR CEE COURSE PARTICIPANTS
(N=246)

		Freq.	Mean	Range
Type of community where participant worked	Rural	174		
	Urban	63		
	no response	9		
Sex	Male	60		
	Female	185		
	no response	1		
Age			36.3 years	18-69 years
Position during 1973-74	Teacher	185		
	Counselor	9		
	Principal	9		
	Other	43		
Grade level taught	1	5		
	2	15		
	3	14		
	4	20		
	5	16		
	6	6		
	7-9	60		
	10-12	18		
	not applicable or no response	92		
Work experience in teaching			9.2 years	1-44 years
Experience in teaching career education			2.9 years	1-23 years
Undergraduate Grade Point Average (4 points = A)	less than 1.99	0		
	2.00-2.49	24		
	2.50-2.99	98		
	3.00-3.49	94		
	3.50-4.00	24		
	no response	6		

TABLE 2--CONTINUED

		Freq.	Mean	Range
Graduate Grade Point Average (4 points = A)	2.67-2.99	8		
	3.00-3.33	37		
	3.34-3.66	65		
	3.67-4.00	61		
	no response	75		
Last degree completed	High School Diploma	2		
	Baccalaureate	13		
	Master's	166		
	Specialist	62		
	Doctorate	1		
	no response	2		
Number of undergraduate career education courses completed	none	220		
	1	6		
	2	1		
	3	3		
	4	1		
	5 or more	6		
	no response	9		
Number of graduate career education courses completed	none	200		
	1	15		
	2	8		
	3	1		
	4	3		
	5 or more	2		
	no response	17		
Are you enrolled in a college degree program?	No	108		
	Yes: non-degree student	23		
	Baccalaureate	8		
	Master's	85		
	Specialist	14		
	Doctorate	2		
	no response	6		

course, suggested improvements, and career education techniques they were using in their classes as a result of the course. Each instrument will be discussed in detail in the following section.

Pre-Posttests and Unit Tests of Cognitive Achievement

The pretest included all the unit and posttest items. The participants were given the pretest during the first class meeting, and each unit posttest was administered at the beginning of the session following the meeting when the unit materials were presented. The course posttest was given on the last day of class. Unit tests were delayed until the following class meeting because the learning sequence for each unit included the homework activities completed during the intervening week, as well as the preprogram preparation, the televised program, the audio review, and the laboratory period. The course posttest measured how much the participants learned during the total course, while the unit tests measured how much the participants learned during each unit, a learning sequence of shorter duration than the total course. The administration schedule for the pre-posttest and unit tests is shown in Table 3.

Two of the unit tests were given on the same day as the materials were presented. On these days an incremental learning experiment was carried out. The participants at each site were randomly divided into three groups. The first group took the unit test immediately after viewing the video program, the second group took the unit test after viewing the video program and hearing the audio review, and the third group took the unit test after viewing the audio program, hearing the audio review and completing the

TABLE 3

ADMINISTRATION SCHEDULE FOR MEASUREMENT INSTRUMENTS USED IN CEE COURSE

Class Meeting	Date	TV Programs seen and associated laboratory sessions done	Unit Tests administered	Other Tests administered
1	6/25/74			Pretest, and Pre-Unit Tests, Confidential Background Questionnaire, Teacher Practices Inventory, Teachers Attitude Questionnaire
2	7/2/74	1, 2		
3	7/9/74	3, 4	1, 2, 4*	
4	7/16/74	5	3	Instruction Feedback Questionnaire
5	7/23/74	6, 7	5, 7*	
6	7/30/74	8, 9	6	
7	8/6/74	10	8, 9	Instruction Feedback Questionnaire
8	8/13/74	11	10	
9	8/20/74	12**	11	Posttest, Instruction Feedback Questionnaire, and Teachers Attitude Questionnaire
Follow-up	February/ March 75			Teachers Attitude Questionnaire, Teacher Pracices Inventory, Special Questions Form

*These unit tests were taken on the day shown due to their use as dependent variables in incremental learning experiments that were carried out for lectures 4 and 7.

**There was no unit test for lecture 12.

laboratory exercises. The goal was to determine the pre-post gain on the unit test due to the additive effects of the three instructional techniques. An analysis of these data failed to indicate any effects attributable to the design. A detailed account of the experimental design and analysis procedures is in Technical Report #4 (Bramble et al., 1974, pp. 34-36).

The pre-posttests and unit tests were four or five choice multiple response items. Examples of the items are found in Technical Report #4 (Bramble et al., 1974, pp. 5-9). Items were scored as right or wrong and total scores were derived by summing the number of right responses. The pre-posttest was originally 60 items; however, it was reduced to 51 at the time of scoring due to nine of the items being assessed by content experts as inappropriate to the content of the course.

The Kuder-Richardson formula 20 (KR-20) reliabilities are given for each test administration in Table 4. The reliabilities of the tests are somewhat low for cognitive measures, and this instability will be taken into account when the results are described in the next section.

Teacher Attitude Toward Career Education Questionnaire

The Teacher Attitude Toward Career Education Questionnaire (TACE) consisted of 30 statements to which the students responded by rating the degree to which they agreed with each statement. The ratings could range from 1 - strongly disagree to 5 - strongly agree. This instrument was given three times - at the beginning and at the end of the course - and as a follow-up measure six months later (February and March, 1975). The instrument was designed to measure the following dimensions of attitudes:

TABLE 4

KR-20 RELIABILITIES FOR PRE-POSTTESTS AND UNIT TESTS FOR CEE COURSE

	Number of Items	Number of Subjects	KR-20	Skewness	Kurtosis
Pretest	51*	231	.703	-.61**	.17
Posttest	51*	233	.544	-.81**	.22

		Pre-Administration		Post-Administration	
Unit Test	Number of Items	Number of Subjects	KR-20	Number of Subjects	KR-20
1	10	231	.314	234	.305
2	11	231	.262	234	.437
3	10	231	.500	238	.561
4	10	231	.320	225	.172
5	9	231	.108	223	.350
6	10	231	.183	230	.311
7	10	231	.153	227	.145
8	10	231	.419	223	.563
9	9	231	.121	221	.504
10	10	231	.137	230	.221
11	10	231	.117	232	.354

*Originally 60 items

**These values are significantly different at the .05 level from values that indicate a normal distribution.

1) that the place for career education instruction is in the school curriculum;

2) that career education instruction should be integrated with academic subjects in the classroom;

3) that career education is not synonymous with vocational education.

Items were phrased so that there was a balance between positive and negative wordings. A copy of the instrument may be found in Technical Report #4 (Bramble et al., 1974, p. 42).

The responses obtained from the first administration at the beginning of the course were factor analyzed. It appeared that a unifactor solution would be appropriate since the first factor accounted for 82% of the total common variance even though there were four eigen values greater than one. Items with an unrotated factor loading greater in absolute value than .39 were retained for scoring. Scale scores were produced by summing the responses to each statement. Items that loaded negatively were reversed. The 25 items selected through factor analyses from the original 30 are shown in Table 5. The coefficient alpha, an estimate of the internal consistency, was computed for the scores from the post course administration (Nunally, 1967, pp. 196-198). The reliability of the instrument thus estimated was .924.

The items retained came more or less equally from the three areas mentioned above. Thus, these areas were not found to be separate dimensions; rather these areas taken together form a general measure of teacher attitudes toward the use of career education in the school curriculum.

TABLE 5

FACTOR LOADINGS FOR SELECTED CAREER EDUCATION ATTITUDE ITEMS

Item	Statement	Loadings
1	The school program should include career development.	.892
2	Career education should be a continuous, life-long process.	.819
3	Information about careers should be integrated with school curriculum.	.855
4	The community is an excellent resource to use in a career education program.	.793
5	I am willing to take the time to find community resources for a career education program.	.780
6	Teaching plans should be organized around what people do in their occupations.	.678
7	I consider what people do in their occupations when I organize my teaching plans.	.534
8	A commitment from the school administration is necessary for a successful career education program.	.708
9	Schools have the responsibility to help students develop career objectives.	.860
10	Students should have experience in the world of work before leaving school.	.765
11	The school curriculum should be related to the career goals of the student.	.802
12	Parents should be aware of career education experiences occuring in the school system.	.881
13	Helping children develop occupational awareness should be emphasized from kindergarten through grade six.	.708
14	Children in elementary school are too young to start thinking about career possibilities.	-.674

TABLE 5--CONTINUED

Item	Statement	Loadings
16	The classroom teacher should be responsible for career education.	.576
17	Career education is just another fad that will soon be forgotten.	-.697
18	Career education will help students make realistic career choices.	.778
19	Students should be permitted to miss regular classes in order to go on field trips.	.597
20	It is important for children to be taught a work ethic.	.720
21	I feel that career education should be included in the curriculum experiences of each child.	.878
22	A commitment from the classroom teacher is needed for a successful career education program.	.840
26	Subject matter lesson plans should include career information.	.812
28	An elementary teacher should know the community employment needs.	.650
29	Enough emphasis is already placed on career education in the schools.	-.638
30	Career education in the elementary school is futile since a person will change his mind several times before picking a lifetime career.	-.567

Teaching Practices Inventory

The Teaching Practices Inventory (TPI) consisted of 134 items. These items were either yes-no or multiple choice in nature. The items sampled teacher behavior from these four areas: Career Education Techniques used (items 1-46), General Teaching Strategies used (items 47-67), School Resources and Staffing (items 68-81), and Curriculum Development Activities (items 82-134). The TPI was administered twice - once before the course and a second time as part of a follow-up study six months later. During the precourse administration the course participants were asked to report on their teaching practices during the 1973-74 school year. During the follow-up administration the participants reported their teaching practices since the conclusion of the CEE course. The follow-up study took place during February and March, 1975.

Two different forms of the TPI were used. For the precourse administration, the participants responded directly on the instrument; but for the follow-up administration, the participants responded on optical scanning sheets. Thus, while the questions remained essentially the same the mode of responding was altered. Also, six items (#129-134) were added to the end of the follow-up version. A copy of the precourse TPI may be found in Technical Report #4 (Bramble et al., 1974) and a copy of the follow-up TPI is included in Appendix 2, Item A.

The first section of the TPI, dealing with career education techniques used in the classroom, was fitted to a latent trait model using the techniques described by Wright and Panchapakesan (1969). These items were scored by regarding a "yes" response correct and a "no" response incorrect.

The items selected were 13 through 30 and 43. Item calibration data is summarized in Table 6. The item calibration was done using the data from the follow-up study. The reliability of the items selected is .771 and the probability of fitting a latent trait is .077 (a value larger than .05 and less than .10 is considered to indicate an adequate fit to a latent trait). The items are listed by difficulty (easy items first). In the last column, Probability of Fit, it may be seen that items 15 and 16 have values that are smaller than .05. These items were retained because since there is an infinite regress in the item calibration procedure, there will always be one or two items that apparently do not fit the latent trait. Scores were obtained by summing the number of correct (yes) responses made to items 13-30, and 43. These raw scores were converted to ability scores according to Table 7. The ability scores have an advantage over raw scores in that the ability scores are an interval scale where the raw scores are not.

Instruction Feedback Questionnaire

The Instruction Feedback Questionnaire (IFQ) was administered after the completion of each third of the course (on July 16, August 6, and August 20, 1974). The purpose of the IFQ was to have the participants rate according to the quantity of useful information nine aspects of the instructional activities carried out during that portion of the course. A copy of the IFQ is presented in Technical Report #4 (Bramble et al., 1974). The participants were instructed to use the average education course as their standard of reference. A five-point rating scale was used where

TABLE 6

ITEM CALIBRATION SUMMARY FOR TEACHING PRACTICES INVENTORY FOR CEE COURSE

Item	Percent Answering Correctly (yes)	Difficulty	Discrimination*	Probability of Fit
19	91.94	-2.595	.25	.39
16	83.87	-1.683	.46	.00
17	81.45	-1.483	.33	.35
18	79.84	-1.360	.36	.40
13	75.81	-1.080	.48	.45
26	67.74	- .596	.54	.52
43	63.71	- .378	.54	.55
28	58.06	- .089	.49	.52
15	56.45	- .009	.52	.04
30	54.03	.111	.43	.57
27	48.39	.387	.53	.57
21	48.39	.387	.62	.57
20	47.58	.426	.52	.39
22	44.35	.584	.46	.38
25	35.48	1.033	.41	.62
14	30.65	1.296	.23	.05
29	30.65	1.296	.45	.53
24	24.19	1.681	.33	.42
23	18.55	2.072	.27	.07

Reliability (KR-20) = .771
Likelihood ratio test for fit to a latent trait model P < .077
Minimum squared standard error = .333
Number of complete cases (persons) = 124

*Point biserial correlation of item response with ability over persons

TABLE 7

PERSON MEASUREMENT SUMMARY FOR TEACHING PRACTICES INVENTORY FOR CEE COURSE

Raw Score	Group Size	Percentile	Ability	Person Error
1	2	.008	-3.529	1.080
2	1	.020	-2.681	.812
3	2	.032	-2.125	.699
4	5	.060	-1.688	.635
5	4	.097	-1.316	.594
6	5	.133	- .984	.566
7	8	.185	- .677	.548
8	9	.254	- .387	.535
9	13	.343	- .107	.529
10	14	.452	.168	.527
11	10	.548	.444	.530
12	14	.645	.726	.539
13	9	.738	1.021	.554
14	8	.806	1.338	.578
15	9	.875	1.690	.617
16	4	.927	2.102	.678
17	6	.968	2.629	.790
18	1	.996	3.440	1.059
Total	124*			

*The total sample size was 136, however, zero and maximum scores are not entered into the analysis (8 had 0 scores, and 4 had maximum scores of 19). Zero scores are assigned the ability for a score of one correct, and maximum (19) scores are assigned the ability for a score of 18.

unacceptable was one (the participant received less useful information from the course than he would have from the average education course) and outstanding was five (the participant received a lot more from the course than he would have from the average education course). A rating of three meant that the CEE course was on a par with the average education course.

Special Questions Form

The Special Questions Form (SQF) was composed of multiple choice and open-ended items designed to gather information on several aspects of the CEE course. A copy of the SQF is in Appendix 2, Item B. Appendix 3 contains randomly selected participant responses to items 4, 5, 7, 8 and 9 from the SQF. This instrument was administered during the follow-up study; it was mailed to 50 randomly selected participants stratified by sites.

Follow-up Study

The follow-up study was conducted by mail during February and March, 1975. Packets containing the ATCEQ and TPI were mailed to 234 participants in February. The participants completed the instruments and returned them to the local RESA director. The RESA directors made subsequent contacts to get replies from late responding participants. In late March the RESA directors returned all completed packets to the Evaluation Component. The response rate was 60%, since partial or complete returns were obtained from 141 participants. Out of the 234 copies of each instrument 136 copies of the TPI and 141 copies of the ATCEQ were returned. Copies of the SQF were included in 50 of the packets; of the 50, 22 were returned.

Analysis of Variance Design

The data available for this analysis were in the form of scores from several administrations of the Cognitive Achievement Test (CAT), Attitudes Toward Career Education Questionnaire (ATCEQ), and the Teacher Practices Inventory (TPI). Also available were scores from two administrations of each of eleven Unit Tests (UT). For reference a summary of the administrations of these instruments is presented in Table 8.

TABLE 8

INSTRUMENT ADMINISTRATION SCHEDULE FOR CEE COURSE

Instrument	Pre Course	Post Unit	Post Course	Follow-up
Cognitive Achievement Test	X		X	
Attitudes Toward Career Education Questionnaire	X		X	X
Teaching Practices Inventory	X			X
Unit Achievement Tests	X	X		

To analyze the data an analysis of variance model was developed and several separate analyses were made using different dependent variables. The first analysis included pre-postcourse administrations of the CAT and ATCEQ. The second included precourse and follow-up administrations of

the ATCEQ and TPI. The third included the three administrations of the ATCEQ. Finally, separate analyses were run for each of the precourse post unit administrations of the eleven UTs.

The analysis of variance design includes three factors. Factor one is receiving triangle (recall that the sites were grouped into receiving triangles). This factor was considered to have fixed effects and it had five levels. Associated with each receiving triangle were three sites. Thus the second factor was sites, and these were nested within triangles. This factor was considered to have random effects and it had three levels. The third factor was administrations, and there were repeated measurements on this factor. This factor had two levels for all analyses except the analysis of the three administrations of the ATCEQ. The sources of variance, error terms and degrees of freedom are presented in Table 9. The analyses were done according to procedures described in Finn (1968, 1969). For a more detailed discussion of the design see Technical Report #4 (Bramble et al., 1974). The degrees of freedom are one less than expected for the S:T and A x S:T sources and the error sources. This is because one site had only one participant with complete data for pre- and postcourse test administrations, and this site was dropped from the analyses.

TABLE 9

SOURCES OF VARIANCE ERROR TERMS, AND DEGREES OF FREEDOM FOR ANALYSES OF VARIANCE DESIGN FOR CEE COURSE

Source	Error Term	df
Between Subjects		N-1
Triangles (T)	S:T	t-1
Sites within Triangles (S:T)	E_b	t(s-1)-1*
Error between (E_b)		N-(t(s)-1)
Within Subjects		N(a-1)
Administration (A)	E_w	a-1
A x T	S:T	(t-1)(a-1)
A x S:T	E_w	(t(s-1)-1)(a-1)*
Error within (E_w)		(N-(t(s)-1)(a-1)**

Key: t = number of triangles
s = number of sites within triangles
a = number of occasions
N = total number of subjects

*One degree of freedom is lost here due to the deletion of one site.

**In some analyses this error term is reduced by 2 df due to using the overall means of the dependent variables as covariates.

RESULTS

Precourse to Postcourse Gains in Cognitive Achievement and Attitudes Toward Career Education

The results of the multivariate analysis of variance (MANOVA) for achievement (CAT) and attitude (ATCEQ) variables are presented in Table 10. There were 194 cases included in the analysis. This is the total number of cases for which the pre- and posttest data were complete. Significant F-ratios were obtained for Triangles (T), Administrations (A), and Administrations by Sites within Triangles (A x S:T). Univariate analyses of variance (AOV) were run to determine which dependent variables were affected by these factors. The AOV results are presented in Table 11. Differences between triangles were found on the achievement variable (CAT), the A x S:T differences were on the attitude variable (ATCEQ), and the Administration differences were on both achievement and attitude. Results from a MANOVA for the precourse scores of the CAT and ATCEQ indicated significant differences for triangles (Table 12), and univariate results indicated that these differences were on the achievement (CAT) variable (Table 13). Results from a MANOVA for the postcourse scores of the CAT and ATCEQ indicated significant differences for S:T (Table 14), and an AOV indicated that those differences were on the attitude (ATCEQ) variable (Table 15).

TABLE 10

MULTIVARIATE AOV FOR ACHIEVEMENT AND ATTITUDE SCORES FOR CEE COURSE

Source	df	Mult. F	df	p<
Between Subjects				
Triangles (T)	4	2.82	8,16	.04
Sites within Triangles (S:T)	9	1.13	18,358	.32
Within Subjects				
Administration (A)	1	12.82	2,177	.0001
A x T	4	.32	8,12	.95
A x S:T	9	2.35	18,354	.002

TABLE 11

UNIVARIATE AND STEP-DOWN F TESTS FOR ACHIEVEMENT AND ATTITUDE SCORES FOR CEE COURSE

Source	Variable	df	F	p<	Step-Down F	p<
T	Achievement	4,9	4.18	.04	4.18	.04
	Attitude	4,9	2.48	.12	2.07	.18
A	Achivement	1,178	13.00	.0005	13.00	.0005
	Attitude	1,178	13.57	.0004	11.84	.0008
A x S:T	Achievement	9,178	1.62	.11	1.62	.11
	Attitude	9,178	3.13	.002	3.11	.002

TABLE 12

PRECOURSE DIFFERENCES IN ACHIEVEMENT AND ATTITUDE FOR CEE COURSE

Source	df	Mult. F	df	p<
T	4	2.70	8,16	.04
S:T	9	1.46	18,358	.10

TABLE 13

UNIVARIATE AND STEP-DOWN F TESTS FOR PRECOURSE DIFFERENCES FOR CEE COURSE

Source	Variable	df	Univ. F	p<	Step-Down F	p<
T	Achievement	4,9	5.06	.02	5.06	.02
	Attitude	4,9	1.65	.25	1.40	.32
S:T	Achievement	9,180	1.85	.06	1.85	.06
	Attitude	9,180	1.10	.36	1.08	.38

TABLE 14

POSTCOURSE DIFFERENCES IN ACHIEVEMENT AND ATTITUDE FOR CEE COURSE

Source	df	Mult. F	df	p<
T	4	.69	8,16	.70
S:T	9	1.83	18,358	.02

TABLE 15

UNIVARIATE AND STEP-DOWN F TESTS FOR POSTCOURSE DIFFERENCES FOR CEE COURSE

Source	Variable	df	Univ. F	p<	Step-Down F	p<
T	Achievement	4,9	1.59	.27	1.54	.27
	Attitude	4,9	0.14	.97	0.14	.97
S:T	Achievement	9,180	1.77	.08	1.77	.08
	Attitude	9,180	1.81	.07	1.91	.05

In summary, significant pre-to-postcourse gains were made for both achievement and attitude variables (Table 11, Administrations). There were different precourse achievement levels for triangles (Tables 12 and 13) and different postcourse attitude levels for sites within triangles (Tables 14 and 15).

The precourse mean for the CAT was 34.71 (sd = 4.82) and the postcourse mean was 40.92 (sd = 3.68). Thus, at the beginning of the course the participants could answer 68% of the CAT items correctly and by the end of the course they could answer 80% of them correctly. This is an achievement gain of 12%. The pre-postcourse ATCEQ mean scores were 97.97 (sd = 13.52) and 99.50 (sd = 9.31), respectively. Dividing these means by the number of items on the ATCEQ, the average rating given to the statements is obtained; these means are 3.92 and 3.98 for pre- and postcourse administrations. This is a small overall gain but in both instances the attitude scores are rather high. An inspection of site means indicates that mean scores for five sites went down (average loss = 4 points), while those from the remaining sites show gains of one point (99.13 to 100.33) to ten points

(90.44 to 100.50). Thus, while there were moderate gains in achievement for all sites, the attitude change varied greatly.

This was not an unexpected result. The CEE course was designed to influence philosophical concepts regarding the inclusion of career information in the regular curriculum; thus, diversity of effect is natural. The reasons for the differential responses by sites could be due to many factors, such as: the prior exposure of the participants to career education programs; the degree to which the CEE course supported or challenged the concepts of local career education programs; and the enthusiasm of the site coordinators for the CEE course.

In the same way, the degree of support and interest in career education at the regional or state level could be responsible for the differences in initial cognitive knowledge between triangles. It is apparent with a postcourse mean of 80% correct responses that the ceiling of the test had been reached. This may account for the lack of postcourse differences in achievement.

TABLE 16

WITHIN-CELL CORRELATION MATRIX FOR PRECOURSE AND POSTCOURSE ACHIEVEMENT AND ATTITUDE FOR CEE COURSE

Variable	1 Precourse Achievement	2 Postcourse Achievement	3 Precourse Attitude	4 Postcourse Attitude
1	1.00			
2	.477	1.00		
3	.031	.139	1.00	
4	.060	.082	.194	1.00

The within-cell correlations are presented in Table 16. In computing these correlations, design effects were removed from the scores. Generally the relationships are weak, but the correlations between pre- and postcourse achievement and pre- and postcourse attitudes are significant.

Precourse and Follow-Up Gains in Attitudes Toward Career Education and Teaching Practices

The results of the MANOVA for precourse and follow-up administrations of the ATCEQ and the Teaching Practices Inventory (TPI) are presented in Table 17. No significant multivariate F-ratios were obtained. The AOV results indicated that there were significant gains on the ATCEQ for Administrations x Sites within Triangles (A x S:T); however, there were no significant (A) gains on the TPI (Table 18). This is puzzling given the gains across the three administrations of the ATCEQ which were found. However, the non-significance is due to the fact that in this analysis the mean level of each participant's response is removed statistically from his gain score and it happens that these two terms are substantially correlated. Thus participants' mean level of responding on the attitude questionnaire was highly related to the amount of gain exhibited across the two administrations being discussed here. In fact, when the mean level of response was not removed from the difference scores, the gain from precourse to follow-up was significant at the .001 level. The within-cell correlations are presented in Table 19. The only significant correlation is between the ATCEQ for pre- and postcourse administrations.

TABLE 17

AOV RESULTS FOR PRECOURSE TO FOLLOW-UP GAINS IN ATTITUDES AND TEACHING PRACTICES FOR CEE COURSE

Source	df	Mult. F	df	p<
Between Subjects				
Triangles (T)	4	1.02	8,16	.46
Sites within Triangles (S:T)	9	.91	18,148	.57
Within Subjects				
Administration (A)	1	.64	2,72	.53
A x T	4	.85	8,12	.58
A x S:T	9	1.34	18,144	.17

TABLE 18

UNIVARIATE AND STEP-DOWN RESULTS FOR A x S:T FOR CEE COURSE

Source	Variable	df	F	p<	Step-Down	p<
A x S:T	Attitudes	9,73	2.34	.02	2.34	.02
	Practices	9,73	.42	.92	.46	.90

Even though not significant, there was a gain in the usage of career education techniques indicated by the TPI scores. The overall means for the TPI were -.80 (sd = 1.40) for the precourse administration and .32 (sd = 1.36) for the follow-up administration. This means that prior to the CEE Course the participants had on the average employed about 6 or 7 of the 19 career

TABLE 19

WITHIN-CELL CORRELATION MATRIX FOR PRECOURSE AND FOLLOW-UP ATTITUDES AND PRACTICES VARIABLES FOR CEE COURSE

Variable	1 Precourse Attitude	2 Follow-up Attitude	3 Precourse Practices	4 Follow-up Practices
1	1.000			
2	.451	1.000		
3	.061	.047	1.000	
4	.187	.129	.222	1.000

education techniques listed on the TPI; six months after the CEE course, they had used about 10 or 11 of those techniques in their classes. (The conversion from ability scores to items was done by referring to Table 7). The response frequencies and percentages for all items on the TPI are presented in Appendix A.

For the ATCEQ a substantial gain in positive attitude was reflected in the follow-up mean score of 106.91 (sd = 20.50), as compared to the precourse mean of 95.04 (sd = 17.09).

The number of subjects in this analysis was only 89. This is less than half the number used in the previous analysis. It cannot be assumed that this is a random sample since there was no control over who returned the follow-up materials. A t-test between the overall precourse means of the ATCEQ for the total sample (N=194) and the follow-up sample indicated statistically significant differences (total sample mean = 97.97, follow-up

group mean 95.04, t = 6.10, df = 281. From this it may be concluded that the available sample was not a representative subgroup of the CEE course participants. As a consequence, conclusions drawn from this analysis must reflect the limitation of a non-representative sample.

Precourse, Postcourse, and Follow-Up Changes in Attitudes Toward Career Education

The results of the AOV for the three administrations of the ATCEQ are presented in Table 20. A significant F-ratio was obtained for Administrations. A trend analysis (Table 21) indicates that there are significant linear and quadratic components. The linear component becomes non-significant if the mean attitude level is removed (non-significant step-down F for the linear trend). Thus, the overall linear change across the three occasions is related to the participant's general level of attitude towards course principles. Likewise the quadratic component becomes significant when the mean level is removed (significant step-down F), but was insignificant before its removal. The correlation of the participant's mean and his linear trend across occasions was found to be .21 and the correlation between the participant's mean and his quadratic trend across occasions was .78. Thus, there was a substantial direct relationship between the participants' mean levels of responding and the magnitude of the linear and quadratic trends across occasions which they exhibited. Looking at Figure 1 it appears that the quadratic component reflects the large gains made over the postcourse/follow-up portion of the study. The means for the three administrations were 96.69 (sd = 19.75), 100.06 (sd = 7.62), and

TABLE 20

REPEATED MEASURES ANALYSIS FOR THREE ADMINISTRATIONS OF THE ATTITUDE TEST FOR CEE COURSE

Source	df	MS	Error Term	F	p<
Between Subjects	108				
Triangles (T)	4	271.86	S:T	1.29	NS
Sites within Triangles (S:T)	9	211.26	E_b	.63	NS
Error between (E_b)	95	333.82			
Within Subjects	218				
Administration (A)	2	2863.13	E_w	16.10	.0001
A x T	8	133.71	S:T	.50	NS
A x S:T	18	265.60	E_w	1.49	NS
Error within (E_w)	190	177.80			

TABLE 21

ORTHOGONAL POLYNOMIAL CONTRAST RESULTS FOR THE THREE ADMINISTRATIONS OF THE CEE ATTITUDE TEST

Source	Variable	df	F	p<	Step-Down F	p<
	mean	1,95	10,033.21	.0001	10,033.21	.0001
A	linear	1,95	30.08	.0001	2.28	.1347
	quadratic	1,95	1.14	.2882	135.33	.0001

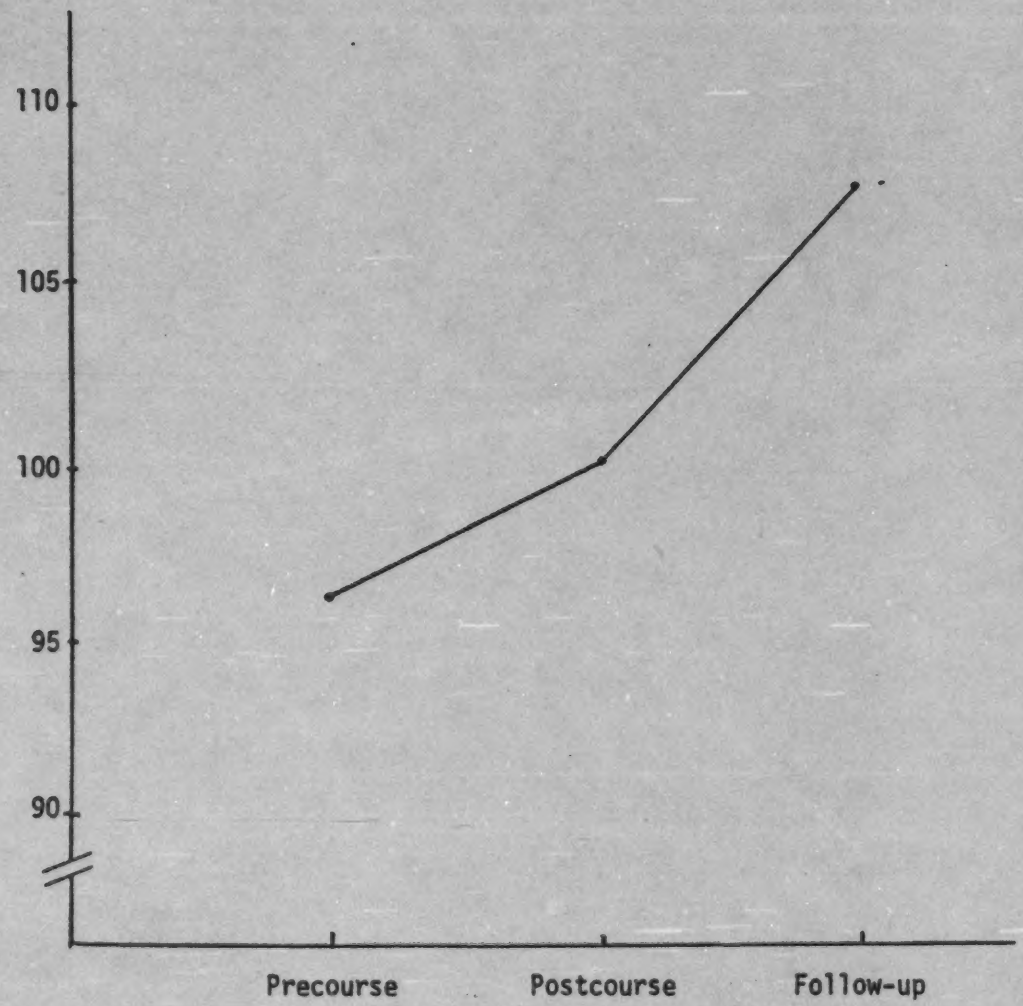


Fig. 1 -- Mean Scores for three Administrations of Attitudes Toward Career Education Instrument (N=109)

107.63 (sd = 22.61). These convert to mean statement ratings of 3.87, 4.00, and 4.31. As may be seen in Figure 1, the increase in the means is most evident between the postcourse and follow-up administrations. This finding is similar to that found in the DPRI course (see Technical Report #8, Bramble, Marion and Ausness, 1975).

The within-cell correlation matrix is presented in Table 22. Here it may be seen that while the correlation between administrations 1 and 2, and 2 and 3 are very small (.129 and .039 respectively), the correlation for 1 and 3 at .435 is relatively substantial.

TABLE 22

WITHIN-CELL CORRELATION MATRIX FOR THREE ADMINISTRATIONS OF ATTITUDES TOWARD CAREER EDUCATION INSTRUMENT FOR CEE COURSE

Variable	1 Precourse	2 Postcourse	3 Follow-up
1	1.00		
2	.129	1.00	
3	.435	.038	1.00

The conclusion to draw from these analyses of attitude change is that only after a lapse of several months, during which the participants had an opportunity to apply what they were taught, did relatively stable, positive attitude change take place. After the course the attitude changes were in a positive direction for two-thirds of the sites, but were negative for one-third of the sites. This inconsistency may not have been due to

their reaction to career education as a concept but due to course variables (such as the fact that the attitude posttest was given on the same day as the final exam) or site variables (site coordinator enthusiasm, participant's prior exposure to career education).

The sample size for the analysis was 109 cases. Again the question of the representativeness of the sample arises. A t-test run between the precourse means for the total sample (N=194) and this sample indicated a significant difference (total mean = 97.97, sample mean = 96.69, t = 2.72, df = 299). Thus, these results must be interpreted in the light of not being based on a representative sample of the total sample of CEE participants.

Precourse and Postunit Gains in Achievement on Unit Tests

All of the items for the unit tests were administered, along with the precourse CAT, on the first class meeting day. Individual unit tests were readministered on the class meeting following the presentation of the content covered by each unit test (Table 3 illustrates this procedure). For the precourse and postunit administrations, an AOV was run for each unit test. The mean percentage correct (pre and post) and the F-ratios from the AOV are presented for each unit test in Table 23. The overall precourse mean percentage correct was 58.3%, and the overall postunit mean was 68.9%; thus, the average gain across unit tests was 10.6%. The AOV results indicate that gains on eight of the eleven pre- to postgains are significant (Table 23: Administrations and A x S:T). There appears to be no simple explanation why three unit tests (#5, 6 and 7) indicated non-significant gains in knowledge other than the unit tests are short tests and, as such,

TABLE 23

MEAN, STANDARD DEVIATIONS AND AOV RESULTS OF GAINS FOR PRECOURSE AND POST UNIT ADMINISTRATIONS OF UNIT TESTS FOR CEE COURSE

Unit Test	Mean Percent Right		Percentage Gain	N	F-Ratio by Source of Variation				
	Pre	Post			T	S:T	A	A:T	A x S:T
1	61.9	75.7	13.8	185	6.56*	1.00	73.30*	2.81	.81
2	57.1	67.5	10.4	187	2.47	2.47*	31.36*	.31	.78
3	57.2	77.3	20.1	190	2.73*	2.03*	80.37*	1.01	2.08*
4	57.2	75.6	18.4	180	3.58*	1.02	101.46*	.26	.52
5	59.7	65.0	5.3	182	11.87*	1.57	.57	.44	1.73
6	60.3	65.8	5.5	185	2.36	2.91*	.01	1.43	1.53
7	69.1	72.9	3.8	183	4.89*	1.50	1.56	.33	.56
8	55.6	65.4	9.8	186	2.48	1.71	3.97*	.18	2.03*
9	38.2	48.1	9.9	181	.31	2.54*	2.01	.90	2.43*
10	60.9	69.9	9.0	193	1.01	2.61*	7.32*	.56	4.34*
11	69.4	74.4	10.0	193	2.18	1.18	9.98*	.11	1.61
Overall	58.3	68.9	10.6						

*p < .05

have somewhat low reliabilities. Thus, the error of measurement is rather high and could overshadow any gains in knowledge. The three tests that did not indicate a significant gain have reliabilities (from Table 4) that are a little lower than the other tests. The participant ratings of the instructional activities measured by these three unit tests indicate that the TV programs were ranked in the upper half and the associated laboratory activities were ranked in the lower half (see Technical Report #7, Harding Bramble and Marion, 1975). The results from the Instruction Feedback Questionnaire (discussed in the next section) indicate a general slump in the perceived information value of the programs during the middle of the course (programs 6, 7, 8, 9, 10). This slump generally includes the three unit tests that failed to indicate significant learning. In general though, there was an increase in knowledge indicated on all eleven unit tests, since the postunit means all increased by at least 5.5%, and the mean increase was 10.6%.

Participant Ratings of Instructional Activities

Information regarding the participants' affective reactions to the various instructional activities was gathered by the Instruction Feedback Questionnaire (IFQ). This instrument was administered three times (after program 5, 10, and 12). The ratings ranged from one (unacceptable) to five (outstanding). A rating of three indicated that the participants felt the activity was equivalent to the average education course. The means for the three administrations are presented in Table 24. All of the means, with one exception, are significantly above the average rating of 3.0. The overall means range from a low of 3.27 (for item 7 regarding the seminar) to a high of 3.96 (for item 5 regarding the on-site reference materials provided

TABLE 24

ITEM MEANS AND STANDARD DEVIATIONS FOR INSTRUCTION FEEDBACK QUESTIONNAIRE
CEE COURSE

Item*		Administration Number			Overall
		1	2	3	
1. Pre-Program preparation compared to work assigned in other graduate classes.	Mean	3.48	3.25	3.51	3.42
	s.d.	.84	.81	.85	.48
	N	216	179	217	
2. TV Program compared to a graduate lecture.	Mean	3.65	3.28	3.50	3.49
	s.d.	.97	.90	.94	.54
	N	215	179	216	
3. Four-Channel Audio compared to class quizzes followed by a discussion of the answers.	Mean	3.25	3.24	3.46	3.41
	s.d.	1.04	1.22	1.09	.64
	N	194	177	216	
4. Ancillary activities compared to laboratory activities in other graduate classes.	Mean	3.71	3.54	3.64	3.64
	s.d.	.84	.84	.87	.49
	N	217	178	216	
5. On-site reference materials compared to materials placed on reserve by other graduate instructors.	Mean	4.11	3.83	3.93	3.96
	s.d.	.88	.96	.89	.53
	N	216	179	216	
6. Retrieval systems materials compared to materials other graduate courses use to help students.	Mean	3.76	3.64	3.59	3.66
	s.d.	.94	.96	.98	.55
	N	189	150	201	
7. Televised interactive seminars compared to graduate seminars and class disucssions.	Mean	3.23	3.16	3.40	3.27
	s.d.	1.06	1.08	1.15	.64
	N	189	153	200	
8. Homework assignments compared to other graduate classes.	Mean	3.66	3.41	3.62	3.58
	s.d.	.80	.87	.78	.48
	N	1.90	153	200	
9. Unit tests compared to instructor made tests in other graduate classes.	Mean	3.72	3.15**	3.48	3.47
	s.d.	.86	1.13	1.10	.59
	N	190	151	199	

*5-point Likert scale 1 = unacceptable -- 5 = outstanding

** This value is the only mean that is not significantly above an average rating of 3.0

for use during the laboratory sessions). Looking at the overall means, the best liked activities were the TV programs (item 2) and the laboratory and associated activities (items 1, 4, 5, 6, and 8). The least liked activities were the seminars (item 7) and the four-channel audio reviews (item 3). Looking across the three administrations for each item, a mid-course slump is apparent for administration two. However, by administration three, most of the ratings had climbed back to the levels of administration one. Overall, the participants rated the instructional activities as offering more information than would be expected from the average education course.

Participant Reaction to CEE Course After Six Months

During the follow-up study in February, 1975, 50 copies of the Special Questions Form (SQ) were mailed to randomly selected participants. Twenty-two of these forms were returned. The SQ consisted of nine items that requested the participant to provide his reactions to several aspects of the CEE course as well as describe the degree to which he was using career education techniques in his classroom.

A summary of the participants' responses is presented in Table 25 and the comments written by participants are presented in Appendix 3. This section will summarize the pertinent reactions of the participants to the CEE course.

The reason the participants signed up for the course are varied (Table 25, item 1), but a substantial percentage reported that they were interested in the subject matter (32%) and attracted by the satellite/ technological aspects of the course (23%). Of the respondents, only 5%

TABLE 25

FREQUENCIES AND PERCENTAGES FROM THE SPECIAL QUESTIONS FORM
CEE COURSE
(N=22)

Item	Frequency	Percentage
1. Why did you sign up for the course		
a) needed it for certification	3	14%
b) interesting satellite experiment	5	23%
c) free credit and books	3	14%
d) encouraged by principal or supervisor	2	9%
e) encouraged by fellow teacher or friend	2	9%
f) really interested in subject matter	7	32%
2. What was your reaction to the course?		
a) I learned many useful skills that are not applicable in my present job	1	5%
b) I learned many useful skills that are potentially useful in my job	21	95%
c) I did not learn many useful skills	0	0%
3. Are you applying many of the skills and techniques presented in the course in your own classroom?		
a) Yes	17	77%
b) No	3	14%
c) I am not teaching this year	1	5%
d) No response	1	5%

TABLE 25--CONTINUED

Item	Frequency	Percentage
4a. What career education techniques are you using?		
a) participants describing techniques used*	16	73%
b) No response	6	27%
4b. How effective are the techniques you used?		
a) participants describing techniques used as being fairly effective*	9	56%
b) No response (out of 16)	7	44%
4c. What was the reaction of your students to the techniques used?		
a) participants reporting student reaction as being positive and/or favorable*	10	63%
b) No response (out of 16)	6	37%
4d. To what extent have your students benefited from the techniques used?		
a) participants reporting that they felt the techniques benefited the students*	7	44%
b) participants reporting limited benefits*	1	6%
c) No response or not classifiable (out of 16)	8	50%

*See Appendix 3 for comments written by participants

TABLE 25--CONTINUED

Item	Frequency	Percentage
5. Knowing what you know about the quality and procedure of the course would you sign up for it now if you had not already taken it?		
a) Yes	18	82%
b) No	1	5%
c) qualified yes, if changes were made*	3	14%
6. Do you feel that you would have enjoyed the course as much as you did if there were no satellite used and		
a) you watched the programs via regular TV		
1) like both the same	8	36%
2) like regular TV better	2	9%
3) like satellite better	11	50%
4) no response	1	5%
b) you listened to a live instructor		
1) like both the same	5	23%
2) like live instructor better	8	36%
3) like satellite better	8	36%
4) no response	1	5%
7. Did you feel that the course was an impersonal experience?*		
a) Yes	7	32%
b) No	14	64%
c) No respnse	1	5%

*See Appendix 3 for comments written by participants

TABLE 25--CONTINUED

Item	Frequency	Percentage
8. Did you feel that the seminars were really interactive?		
a) Yes	14	64%
b) No	8	36%
9. Describe the role of the Site Coordinator. Was the Site Coordinator helpful? How could his services be improved?		
a) participants reporting that the Site Coordinator was helpful*	11	50%
b) participants reporting that while the Site Coordinator was helpful he needed to have a better understanding of the course content and procedures.*	7	32%
c) No response	4	18%

*See Appendix 3 for comments written by participants

said they would not sign up for the course again knowing what they do about its content and structure (Table 25, item 5). Thus the 95% of the participants who would again take the course evidently felt that it was a valuable experience and that they had learned useful skills (Table 25, item 2).

With regard to the structure of the course, 50% reported that they would rather watch a television program via a satellite system than via a regular broadcast system; however, the opinion was split (36% to 36%) as to whether satellite programs were better than an in-service instructor (Table 25, item 6). Generally the participants felt that the seminars were interactive (64%) in that they felt that they had personal input into the programs (Table 25, item 8). Regarding the helpfulness of the site coordinators, 82% of the respondents felt they had been helpful, but 32% felt that the site coordinators needed to have a better understanding of the course materials (Table 25, item 9). Overall, 64% of the participants felt that the CEE course was a personal rather than impersonal experience (Table 25, item 7). This is an important result illustrating that a course delivered mainly via television to a widely scattered audience can maintain the feeling of personal contact that is so important in effective instruction.

When asked if they were applying in their classrooms career education techniques they learned in the course, 77% replied in the affirmative (Table 25, item 3). The techniques the participants used are presented in Appendix 3, Item A. Of those participants using career education techniques, 56% felt that the techniques they used were effective; 63% felt that their students reacted favorably to the career education activities; and 44% felt that their students had benefited from the career education experiences (Table 25, item 4).

CONCLUSIONS

In the Introduction it was stated that this report would answer five questions. This section will take each question in turn and drawing together the results described above, answer each question.

The first question asked: Did the course participants demonstrate mastery of the course objectives? The answer here is yes. The mean post achievement score was 80%; thus, we can conclude mastery of course content was achieved. Also, the overall gain in cognitive knowledge was 12% and the statistical tests indicated that this was a significant gain over entry knowledge level.

Question two asked: Were the course activities and materials more effective at facilitating mastery of some of the course objectives than others? The answer to this is yes. From the analysis of the unit tests, significant gains in cognitive knowledge were not achieved for programs 5, 6 and 7. Thus, if the unit tests were adequate measures of cognitive gains then it appears that these three programs and their associated activities were not as effective as the others. Also, the conclusions drawn from the Instruction Feedback Questionnaire indicate that the seminars and the four-channel audio review were not as useful as the TV programs and laboratory activities in communicating information.

The third question asked: Did the attitudes of the participants toward the instructional strategies and materials included in the course change in the intended direction? Here again the answer is yes. Significant if inconsistent, gains in attitudes toward career education concepts were found immediately following the course, and even larger and more stable gains were found after six months time. Attitude gains varied by sites and this could be due to many factors: the participants' reaction to established career education programs in their area; the site coordinator's degree of support and familiarity with career education concepts; the degree to which the course concepts challenged prior concepts of career education; or course variables such as presentation style.

Did the participants feel that the instructional activities provided them with useful and valuable information? The results from the IFQ indicate that the participants generally felt that the CEE course provided them with more useful information than did conventional, on campus education courses. The respondents to the SQ also stated that they felt the course was useful and valuable.

Finally the most important question: Did the participants use the strategies and materials presented in the course in their own classrooms? Even though the analysis of the TPI did not indicate a significant increase in the utilization of career education techniques, the results from the SQ indicate that the participants are using the career education techniques they were taught and that they feel these techniques have been beneficial for their students.

APPENDIX 1

Item A

Televised Program Titles and Descriptions of Material Covered

PROGRAM 1 - THE CONCEPT OF CAREER EDUCATION

This introductory program is designed to demonstrate the need for career education and to offer a "basic tenets" definition of it. In so doing, it touches upon both educational and general social needs, recent history of career education, several prominent definitions and the overall philosophy of career education.

PROGRAM 2 - A COMPLETE CAREER EDUCATION PROGRAM

In this program selected examples of career education oriented classroom sessions demonstrate the actual implementation of this concept throughout the school system (kindergarten through 12th grade and beyond). The specificity of these examples enhance the working definition of career education from the previous program and as an overview, introduce items to be treated later in the course (e.g. child development and career development theories and sequencing). This presentation should leave the student with the basics of the total scope of career education from awareness to exploration to preparation and beyond high school.

PROGRAM 3 - JOB CLUSTERING: A TOOL FOR CAREER EDUCATION

This presentation demonstrates the need to order and sequence the vast world of work for students. Clustering is introduced and defined as a major tool for the teacher to use in this effort. Although several types of available clustering systems are mentioned, the major portion of the program is devoted to offering the audience a single clustering system to use as a guide to career education in their own classroom.

PROGRAM 4 - INTEGRATING CAREER EDUCATION INTO THE CURRICULUM

This program gives the detailed steps needed for integrating a single career education experience into the academic curriculum. As a "how to" primer it shows the teacher how to establish career education goals and plans in language arts. While the program offers a set of examples appropriate to an ideal situation, the student receives a formalized integration process which he/she can easily adapt to individual classrooms.

PROGRAM 5 - TOTAL CURRICULUM INTEGRATION

This program reinforces and builds upon that information and those efforts discussed in Program 4 by expanding the sample integration scheme into the academic subject areas of science, math, and the social sciences. In doing so, it offers a set of examples that represent total curriculum integration in an ideal situation, and gives the teacher a view of integration in a complete curriculum unit. With the information developed in Programs 4 and 5, the student has a sound, practical, base for integrating career education in the classroom.

PROGRAM 6 - THE COLLECTION AND UTILIZATION OF INSTRUCTIONAL MATERIALS

This presentation focuses on various types of resource materials available to the classroom teacher for use in infusing career education into the classroom. Concerning commerical materials available, the program offers guidelines on how to assess and utilize film strips, study kits. Too, the program presents a host of ideas and resources the teacher can use in creating his/her own materials for career education.

PROGRAM 7 - COMMUNITY RESOURCES

This program asserts the importance of community involvement as both a valid input to educational change and as an extremely fruitful resource area. It focuses on the actual classroom use of the community as a resource and the importance of the teacher's role as a liaison between the community and the student.

PROGRAM 8 - IMPLEMENTATION STRATEGY (for the School System)

This presentation describes the roles that must be assumed by everyone in the school in planning and implementing a total career education program. Beyond the individual classroom teacher, this would include curriculum task force committees, guidance counselors and administration personnel.

PROGRAM 9 - ATTITUDES ABOUT CHANGE

This program acquaints the teacher with the attitudes, both pro and con, that he or she must, at some time, deal with. As career education necessitates a form of educational change, it must invite and contend with the feelings, attitudes, and convictions of everyone--from the teacher in the next classroom to the community at large. It is the purpose of this program to display many of these points of view, and thus, aid each student in formulating his or her own ideas.

PROGRAM 10 - DEALING WITH EDUCATIONAL CHANGE

Building on information from previous programs, this program demonstrates the necessity of community involvement in effectively dealing with concerns about educational change.

PROGRAM 11 - SPECIAL INTERESTS AND CAREER EDUCATION

Related to attitudes, this program centers on the needs of special concern groups such as labor, management, minority groups, and exceptional children. These are areas that must be considered in any plan for educational change.

PROGRAM 12 - THE REWARDS OF A COMPREHENSIVE CAREER EDUCATION PROGRAM

This presentation illustrates the implications of career education for the ultimate consumer, the student.

APPENDIX 1

Item B

Summary of Materials Covered in Laboratory Activities

Session 1

PROGRAM 1 - The Concepts of Career Education
4-Channel Audio

PROGRAM 2 - A Complete Career Education Program
4-Channel Audio

Activities and Materials Needed

1. Life-ropes Activity Description
   - Old magazines
   - 4" x 6" index cards
   - Crayons or felt pens
   - Ball of string
   - Scissors

2. Laramore, Darryl, "The Classroom Teacher in Career Education", NASSP Bulletin, (activity)

3. Procedure for "Brainstorming" about Career Development

Assignments

Read: Marland, Sidney, "Career Education - More Than a Name"
Marland, Sidney, "The Need for Career Education"
Marland, Sidney, "Career Education Now"
Keller, Louise, Career Education In-Service Training Guide*

Session 2

PROGRAM 3 - Job Clustering
4-Channel Audio

PROGRAM 4 - Integrating Career Education into the Curriculum
4-Channel Audio

Activities and Materials Needed

1. Review the summary of USOE clustering system

2. Correlate the local resources with USOE clusters--local telephone directories

*This guide was provided to each student

3. Correspondence for information activity
   **An Analysis of 15 occupational clusters as identified by the U.S. Office of Education
   **Dictionary of Occupational Titles, Vol. 1-2.
   **Occupational Outlook Handbook
   **Encyclopedia of Careers, Vol. 1-2
   Stationery
   Envelopes

4. AIM/ARM Activities Description
   **Definition and Procedures Manual
   **Indexes and Abstracts
   **Microfiche
   **Microfiche Readers

Assignments

Read sample unit based on the health cluster.
Review questions to be polled for week #3

Session 3

PROGRAM 5 - Total Curriculum Integration
4-Channel Audio

Seminar 1 - Curriculum Integration, Alternate Ideas and Special Problems

Activities and Materials Needed

1. Read Class Project Description
2. Add-on Unit Sample and Procedure, Plan A
3. Infused Unit Sample and Procedure, Plan B
4. Career Education Media Procedure
5. Retrieval Systems Search Descriptions
   **AIM/ARM Training Manual
   **CBRU Reference Manual

Assignment

Begin research on your Career Education Learning Package

**These reference materials were available to participants on the reference shelf at each site.

Session 4

PROGRAM 6 - Collection and Utilization of Instructional Materials
4-Channel Audio

PROGRAM 7 - Community Resources
4-Channel Audio

Activities and Materials Needed

1. "Hands-On" Activity Procedure
2. "Yellow Pages of the Working World" Procedure

Assignments

1. Develop "hands-on" activity
2. Begin assignment on "Yellow Pages of the Working World"
3. On-going research and development of Career Education Learning Package

Session 5

PROGRAM 8 - Implementation Strategy (for the School System)
4-Channel Audio

PROGRAM 9 - Attitudes About Change
4-Channel Audio

Activities and Materials Needed

1. Learning Center Procedure and Activity
2. Self Made Persons Procedure and Activity
   - Article, "Conviviality and Fate Control"
   - Article, "Tell Me Teacher"

Assignments

On-going reserach and development of Career Education Learning Package

Session 6

PROGRAM 10 - Dealing with Educational Change
4-Channel Audio

Seminar 2 - Problems in Program Planning

Activities and Materials Needed

1. Hand in Yellow Pages of the Working World
2. Educational Change: Part I, "Permanence"
3. Educational Change: Part II, "Stability Versus Change"
4. Educational Change: Part III, "Process"
5. Educational Change: Part IV, "Changed Objects"

Assignments

1. Complete pre-program questionnaire; due: Week 7, August 6, 1974
2. Read article and supplementary questions regarding the roles of students and communities in planning curriculum change
3. On-going research and development of Career Education Learning Package

Session 7

PROGRAM 11 - Special Interests and Career Education
4-Channel Audio

Seminar 3 - Assessing and Dealing with Local Special Concerns

Activities and Materials Needed

1. Stereotyping Instructions
   - Manila envelope entitled "Stereotyped Activity"
2. Stereotyping--Whole Group Discussion Topics

Assignments

1. Collecting Data on Stereotyping; due: Week 8, August 20, 1974
2. Read "The Problems with Stereotypes"

Session 8

PROGRAM 12 - The Rewards of a Comprehensive Career Education Program
4-Channel Audio

Seminar 4 - Summary Discussion with National Career Education Authorities

Activities

1. Discuss Week 7 assignment; "Collecting Data on Stereotyping"
2. Read summary article: "Career Education: A Report," by Sidney Marland
3. Turn in Career Education Learning Packages
4. Complete Course Evaluation Instruments

APPENDIX 2

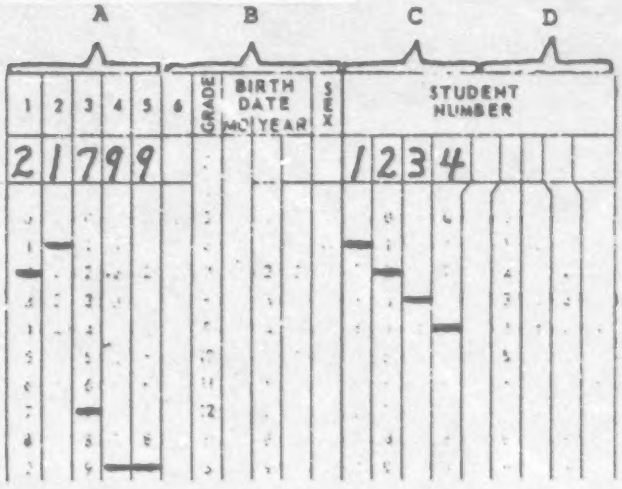
Item A

FOLLOW UP STUDY TEACHING PRACTICES INVENTORY: CAREER EDUCATION

The questions below concern what you did in your school since September, 1974. Please answer the questions to the best of your ability. No good or bad evaluation of your activities will be made. This information will be used to evaluate the success of the course you took last summer.

Attempt to answer all questions. However, feel free to leave blank any questions that do not apply to your job situation.

Write your replies on the Op-Scan sheet provided. Turn the Op-Scan sheet so that the box that says "STUDENT NUMBER" is on your lower right. Fill out the box labeled "1 2 3 4 5" and the box labeled "STUDENT NUMBER" as indicated in the diagram below.



Instructions:

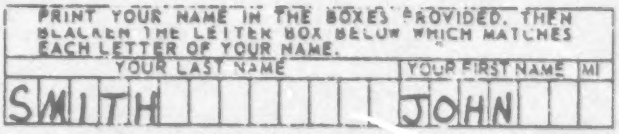
A - copy this just as it appears

B - leave blank

C - fill in YOUR 4 digit student number from the summer course

D - leave blank

Write your name in the boxes provided as indicated in the diagram below.


PRINT YOUR NAME IN THE BOXES PROVIDED. THEN BLACKEN THE LETTER BOX BELOW WHICH MATCHES EACH LETTER OF YOUR NAME.
YOUR LAST NAME
YOUR FIRST NAME
MI
S M I T H
J O H N

Use a soft-lead (#2) pencil to mark the answer sheet -- do not use a pen or ball-point. Be sure your mark fills the entire block of the response you wish to make. Your mark should be heavy, black and stay within the lines so that the machine can read your replies. If you change your mind or make a mistake, be sure that you erase completely. Do not make any other marks on the answer sheet.

Turn the sheet so that the words "STANDARD ANSWER SHEET-C" are on your lower left. Begin answering at number 1. Be careful that the item number on the inventory corresponds to the number on the Op-Scan sheet that you are marking.

With regard to this fall semester

1. Was there a functioning Career Education program in your school? (1) Yes (2) No

2. Was there a Career Education program in your school and was your class involved in the program? (1) Yes (2) No

3. Was time taken in your class to do Career Education activities? (1) Yes (2) No

4. No time was taken in classroom for specific Career Education activities, however, Career Education was incorporated with other parts of curriculum. (1) Yes (2) No

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The person(s) who had the most responsibility in devising a Career Education program in your school was (select as many as apply)

5. Guidance Counselor (1) Yes (2) No

6. Teachers (1) Yes (2) No

7. Principal (1) Yes (2) No

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8. Did your school principal discuss the development of Career Education programs with you? (1) Yes (2) No

9. Did you find the concept that individuals differ in their interests, abilities, and values was important to Career Education? (1) Yes (2) No

10. Did you find that hobbies were a good source of Career Education information? (1) Yes (2) No

11. Did you feel comfortable doing Career Education projects in the classroom? (1) Yes (2) No

12. The best outside source for Career Education materials is

    (1) Books and pamphlets
    (2) Career Education kits
    (3) Films and filmstrips
    (4) Records and tapes
    (5) Sources other than those above

Which of the following techniques did you use this fall? (select as many as apply)

13. Explain to students that each person sees a job differently (1) Yes (2) No

14. Have students pick an occupation and tell what it is and then compare answers (1) Yes (2) No

15. Use persons employed in the community as speakers (1) Yes (2) No

16. Introduce students to various types of jobs (1) Yes (2) No

17. Ask students what they would like to do when they grow up (1) Yes (2) No

18. Ask students what their fathers do for a living (1) Yes (2) No

19. Help students to see themselves as worthwhile individuals (1) Yes (2) No

20. Role playing of various jobs (1) Yes (2) No

21. Outside speakers explaining their jobs (1) Yes (2) No

22. Have children's parents serve as resources for information about careers (1) Yes (2) No

23. Have students make a chart of your community needs and the occupations that fulfill those needs (1) Yes (2) No

24. Have students write essays on what life would be like without certain jobs (1) Yes (2) No

25. Have students make a list of all jobs they can think of (1) Yes (2) No

26. Explain educational requirements of jobs (1) Yes (2) No

27. Have students explore the types of educational skills needed for jobs in which they are interested (1) Yes (2) No

28. Explain what jobs use the educational skills you are teaching (1) Yes (2) No

29. Have students use educational skills in simulated jobs (1) Yes (2) No

30. Techniques other than those above (1) Yes (2) No

In order to gain information about Career Education which of the following did you rely on? (select all that apply)

31. Regional Career Education center (1) Yes (2) No

32. School system Career Education center (1) Yes (2) No

33. School Career Education center (1) Yes (2) No

34. Guidance counselor (1) Yes (2) No

35. School principal (1) Yes (2) No

36. Local industries (1) Yes (2) No

37. Local library (1) Yes (2) No

38. Professional books and journals (1) Yes (2) No

39. College library (1) Yes (2) No

40. College professors (1) Yes (2) No

41. Information retrieval systems (1) Yes (2) No

42. Sources of information other than those above (1) Yes (2) No

43. Did you use movies and filmstrips concerning Career Education in your classroom? (1) Yes (2) No

44. Do you know where to obtain movies and filmstrips concerning Career Education? (1) Yes (2) No

45. It appeared that the students' parents wanted Career Education taught in this community. (1) Yes (2) No

46. Did your school system have in-service training sessions for Career Education techniques? (1) Yes (2) No

47. Did you find standardized tests useful to your teaching procedures? (1) Yes (2) No

Have you taught in (select as many as apply)

48. Team teaching situations (1) Yes (2) No

49. Open classrooms (1) Yes (2) No

50. Traditional classrooms (1) Yes (2) No

51. Resource Center (1) Yes (2) No

52. Individual instruction situations (1) Yes (2) No

53. Homogeneous classrooms (1) Yes (2) No

54. Other teaching situations not covered above (1) Yes (2) No

55. During the classroom work periods the noise level in your room was

(1) completely quiet
(2) whisper noise caused by students working together
(3) fairly great amount of noise caused by enthusiasm and group involvement
(4) fairly high since many of the students were not interested in learning

56. Were parents very involved in your school programs this fall? (1) Yes (2) No

57. Students in your school, on the whole

(1) were interested and enthusiastic about school
(2) were mildly interested
(3) did not appear interested, but did their school work
(4) seemed to be only passing time of day
(5) disliked school

58. Did you carefully define what you expected from your students and write down those expectations in the form of objectives? (1) Yes (2) No

The teaching strategies you used most were (select as many as apply)

59. Teaching small groups (1) Yes (2) No

60. Teaching large groups (1) Yes (2) No

61. Teaching an individual (1) Yes (2) No

62. Using a lesson plan developed by someone else (1) Yes (2) No

63. Developing your own lesson plan (1) Yes (2) No

64. Did you encourage students to help each other in the classroom? (1) Yes (2) No

65. Did you have students tutor other students? (1) Yes (2) No

66. In working with small groups which technique did you use most? (choose one answer)
    (1) Lecturing
    (2) Serving as a resource person
    (3) Do both about equally
    (4) Other technique than those above

67. What were the majority of your lessons based on? (choose one answer)
    (1) A state prepared lesson plan
    (2) A system-wide lesson plan
    (3) A commercially developed lesson plan
    (4) A school-wide lesson plan
    (5) A lesson plan developed by yourself

68. Did you have a budget for classroom supplies and materials? (1) Yes (2) No

69. Did you order supplies and materials for your class? (1) Yes (2) No

70. Are you of the opinion that your school had satisfactory supplies, equipment and materials? (1) Yes (2) No

Did your classroom equipment include

71. A television (1) Yes (2) No

72. Tape recorder (1) Yes (2) No

73. Phonograph (1) Yes (2) No

74. Over-head projector (1) Yes (2) No

In which of the following areas did you feel that your school needed additional staff members?

75. Administrative (1) Yes (2) No

76. Supervisory (1) Yes (2) No

77. Counseling and guidance (1) Yes (2) No

78. Classroom teachers (1) Yes (2) No

79. Teachers aids (1) Yes (2) No

80. Medical (1) Yes (2) No

81. About how many books did your school have in its library?

(1) less than 1000
(2) 1001 - 2000
(3) 2001 - 3000
(4) 3001 - 5000
(5) over 5000

82. Did the guidance counselor supply you with materials which helped to strengthen your instructional program? (1) Yes (2) No

83. Did the State Department of Instruction have available materials which you found useful? (1) Yes (2) No

84. Are you familiar with the ERIC microfiche system? (1) Yes (2) No

85. Do you know the location of an ERIC Reader in your vicinity? (1) Yes (2) No

86. Have you had any input into the curriculum which you teach? (1) Yes (2) No

87. Did your principal or supervisors encourage you to experiment with different instructional styles or techniques? (1) Yes (2) No

88. Did students have any input to your curriculum development? (1) Yes (2) No

89. Did you take part in curriculum development committees? (1) Yes (2) No

When faced with an instructional problem, what did you do? (select as many as apply)

90. Sought the help of guidance counselor (1) Yes (2) No

91. Sought the help of fellow teacher (1) Yes (2) No

92. Sought the help of principal (1) Yes (2) No

93. Sought the help of area supervisor (1) Yes (2) No

94. Solved the problem by yourself (1) Yes (2) No

95. Did you see a need for a curriculum revision in your school system? (1) Yes (2) No

96. Did you see a need for a revision of your curriculum in your school system and find that you were not able to help in its revision? (1) Yes (2) No

97. Did you see a need for a revision of your curriculum in your school system and find that you were able to help in its revision? (1) Yes (2) No

98. Did you feel that you had a sufficient amount of time during the day to prepare your lessons? (1) Yes (2) No

Through which of the following activities did you share your teaching ideas with your fellow teachers?

99. Informal discussions (1) Yes (2) No

100. As a leader of an in-service teacher training program (1) Yes (2) No

101. As a participant in an in-service teacher training program (1) Yes (2) No

102. As a coordinator of a curriculum development project (1) Yes (2) No

103. As a participant in a curriculum development project (1) Yes (2) No

104. Other activities not listed above (1) Yes (2) No

If you selected one or more activities in items 99-104, select the area or areas towards which those activities were aimed.

105. Career Education (1) Yes (2) No

106. Reading (1) Yes (2) No

107. Mathematics (1) Yes (2) No

108. Language Skills (1) Yes (2) No

109. Social Studies (1) Yes (2) No

110. Natural Sciences (1) Yes (2) No

111. Industrial Arts / Home Economics (1) Yes (2) No

112. Other areas (1) Yes (2) No

Were there factors that inhibited you from carrying out some project or curriculum revision? If so, check as many below as apply.

113. Lack of self-confidence (1) Yes (2) No

114. Lack of knowledge and skills (1) Yes (2) No

115. Lack of administrative support (1) Yes (2) No

116. Lack of money (1) Yes (2) No

117. Lack of resources (1) Yes (2) No

118. Lack of fellow teacher support (1) Yes (2) No

119. Lack of time (1) Yes (2) No

120. Other factors (1) Yes (2) No

Were there factors that encouraged you to initiate and carry through a project or curriculum revision? If so, check as many as apply.

121. Confidence in self (1) Yes (2) No

122. Sufficient knowledge and skills (1) Yes (2) No

123. Adequate administrative support (1) Yes (2) No

124. Adequate money (1) Yes (2) No

125. Adequate resources (1) Yes (2) No

126. Adequate fellow teacher support (1) Yes (2) No

127. Sufficient time (1) Yes (2) No

128. Other factors (1) Yes (2) No

129. Was your school departmentalized? (1) Yes (2) No

Did you plan career education activities on

130. An individual level (your classroom only) (1) Yes (2) No

131. An intra-departmental level (1) Yes (2) No

132. A school wide level (1) Yes (2) No

133. Was there cooperation within your department in curriculum development or modification activities? (1) Yes (2) No

134. Did your department coordinator encourage curriculum development or modification activities? (1) Yes (2) No

AESP/EVAL/12/16/74/rm/gjm

APPENDIX 2

Item B

SPECIAL QUESTIONS FORM

This form asks you several very important questions about the course you took last summer. These items provide information about a number of questions we have been asked by persons and agencies interested in the satellite project.

You are one of only 50 course participants selected to answer this form, so please return it to us. You are to respond anonymously, but please indicate which course you took, your job, and the grade level of the students you work with.

Course _____

Job _____

Grade Level _____

1. Why did you sign up for the course? Choose the one most applicable answer.

___ (a) Needed it for certification
___ (b) Interesting satellite experiment
___ (c) Free credit and books
___ (d) Encouraged by principal or supervisor
___ (e) Encouraged by fellow teacher or friend
___ (f) Really interested in subject matter of course
___ (g) Other (please specify)

_____

_____

2. Select the alternative that best describes your reaction to the course you took.

___ (a) I learned many useful skills that are not applicable in my present job.
___ (b) I learned many useful skills that are potentially useful in my job.
___ (c) I did not learn many useful skills.

3. Are you applying many of the skills and techniques presented in the course in your own classroom?

___ (a) Yes
___ (b) No
___ (c) I am not teaching this year.

4. If you answered yes to question 3 will you please briefly explain (a) what techniques you are using; (b) how effective you feel they are; (c) the reaction of your students to the techniques you have employed, and (d) the extent to which you feel your students have benefited from the new techniques (mention any relevant results on standardized tests).

(a) _____

_____

_____

_____

(b) _____

_____

(c) _____

_____

(d) _____

_____

5. Knowing what you know about the quality and procedures of the course would you sign up for it now if you had not already taken it?

___ (a) Yes
___ (b) No
___ (c) Qualified yes, I would sign up for it if the following changes were made:

_____

_____

6. Do you feel that you would have enjoyed the course as much as you did if there were no satellite used and ....

(a) you watched the programs via regular TV

___ like both the same ___ like satellite better
___ like regular TV better

(b) you listened to a live instructor

___ like both the same ___ like satellite better
___ like live instructor better

7. Did you feel that the course was an impersonal experience?

___ Yes ___ No

Explain some ways you feel that a course delivered via satellite could be made more personal.

_____

_____

_____

_____

8. Did you feel that the seminars were really interactive, i.e., did you feel that you had a real input into the seminar and that what you heard and saw was of personal relevance for you. ___ Yes ___ No
Please explain your reaction.

_____

_____

_____

9. Describe the role of the site coordinator as it appeard to you. Was the site coordinator helpful? How could the services of the site coordinator be improved?

_____

_____

_____

_____

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APPENDIX 3

Item A

Participant Responses to Item 4 on the SQ

As the reader will recall, several items on the Special Questions Form (Appendix 2, Item B) were open-ended questions dealing with various aspects of the course. Item 4 from the SQ was a question of this nature which dealt with career education instructional techniques participants had learned in the CEE course and were implementing in their classrooms. This item read, "If you answered yes to question 3, will you please briefly explain (a) what techniques you are using; (b) how effective you feel they are; (c) the reaction of your students to the techniques you have employed; and (d) the extent to which you feel your students have benefited from the new techniques (mention any relevant results on standardized tests)."

Randomly selected responses for each stem of item 4 are presented on the following pages.

Career Education Techniques Used

Since the field of career education is still rather new, there is no one "best" set of techniques advocated by experts in the field. Therefore, the career education course attempted to present a variety of viewpoints of well-known writers of career education literature as to how career education techniques can be used in any one teaching situation to produce the desired outcome. Although some techniques were mentioned more often by participants than others, the following categorizes all techniques mentioned in the random sample. Of those listed, which follow, we have

further classified some as approaches and some as actual techniques. The various approaches to introducing career education into the elementary school curriculum that were mentioned were:

1) Individualized instructional methods

   a) using electronic devices such as TV, film projector and cassette recorders with headsets

   b) learning centers with materials pertaining to various clusters of career information

   c) learning centers complete with activities for developing other types of skills, enrichment activities;

2) Unit studies of career clusters;

3) Academic unit studies with career implications infused into the academic area;

4) Infused career awareness into the total academic program where appropriate.

The term career education technique means the strategy or strategies used in actually "getting started" with Career Education. Among the techniques listed were:

1) Strategies such as parent interviews, in-class visitors, field trips, hands-on experiences as related to areas of study, bulletin boards, etc.;

2) Started by developing a career education concept such as work ethic or understanding of community employment needs and infusing this into a lesson;

3) Started by including simple career education activities, such as "Life Ropes", in lesson plans;

4) Began by initiating small group work on careers or career clusters;

5) Began by coupling the affective, or "self-awareness", activities career education techniques with the regular lesson plans where appropriate.

Effectiveness of Techniques Used

What follows are comments selected from the random sample of participant responses regarding the effectiveness of the approaches and techniques listed on the previous page.

"Students enjoy getting away from the old classroom routine and they like the idea of using such devices as the TV, film projector, etc."

"Students are responding favorably to career education approaches."

"We discussed jobs and the value of money. Students enjoyed the trip tremendously, especially since we had a party following our field trip."

"Through career education approaches, pupils develop better attitudes and more ambition for the future -- I hope!"

"I feel that these techniques are effective."

"I feel that students gained some skills and improved in others."

"It is hard to evaluate the effects of these techniques at this grade level."

"Fair - students from grade 9 and down are not too concerned."

Student Reactions to the Techniques Used

Participants' comments regarding the reactions of students to these techniques and approaches were as follows:

"Students really enjoy it, and they seem to take more interest when such devices as TV are used. Also, they look forward to being evaluated by questions and answers on tape."

"Pupils develop interest and become more involved."

"Good reactions."

"The children were interested in the different helpers - deciding which helper they would like to be and why -- also, some of the requirements of different helpers were of interest to the children."

"Fairly good."

"Positive - better classroom climate."

"Reactions, particularly for the Vo-Tech bound student, has been excellent."

Extent to Which Students Have Benefited From Techniques Used

Regarding this question, participants commented as follows:

"I do not test. Older students do, however, seem to see the relevance of career education."

"The children do show interest in their own careers; however, there are no measurable results as to how much they have benefited from these techniques."

"It increases thinking and planning for the future."

"Limited benefits because of age."

"These techniques seem to engender a better self-concept in students through better self-understanding."

"Most students are interested, at least, in exploring different job areas as a result of introducing them to career education."

"I feel that just being job conscious and explaining some jobs will help my children to do more exploring and will aid in decision making as they grow up and have to make choices."

APPENDIX 3

Item B

Participant Responses to Items 5, 7, 8 and 9 on the SQ

Item 5: I would sign up for the course is the following changes were made:

"A course outline is needed - with expectations and requirements spelled out. Instructor should answer all questions; videotapes should be made more interesting; tests should be dropped or questions made less ambiguous; and class projects made more relevant."

"The course was better organized."

"Too much busywork - need not have taken all day."

Item 7: Did you feel that the course was an impersonal experience? (Yes or No) Explain some ways you feel that a course delivered via satellite could be made more personal.

a) Participants who felt the course was not impersonal:

"Have more direct questions and answers between student and instructor. Have some way for students in one location to have a direct connection with students in other locations to discuss their problems and good points."

"The instructor should take a bigger part in the presentation."

"Need feedback on evaluations; too, there should be more time for the seminars."

"TV is not impersonal. The greatest advantage to using the satellite was to have 'experts' speak to us."

Even though TV tends to be impersonal, the programs could be made more exciting--the satellite program could explore career possibilities, on-scene sites, etc. which could be exciting. Let the on-site teacher personalize use of the satellite for vicarious experiences."

"Our site monitor made up for the depersonalized TV sessions."

"Perhaps more visits to the sites by career education personnel would serve to personalize the course, but I didn't feel the need for more direct contact."

"I enjoyed the relay of questions and answers."

"Perhaps there could be a seminar in each class during the course to discuss local problems. Because there were common problems to all, the course was made more personal."

"Use less forms but have more interaction between sites and RCC."

"In many instructor-headed classrooms, there is less personal contact than a course delivered via satellite. The satellite course was personal by way of the close association with fellow students which is not found often. Also, if the need for help arose, it was always develivered."

b) Participants who felt the course was impersonal:

"More interaction and spontaneous dialogue by the people in seminars. It seemed that 4-channel audio was not designed for the content of program and thus, not worth the effort!"

"The lecturers or panel could appear in person in a classroom setting."

"I think a trained person is needed at each site who would be able to answer questions. No student numbers!"

"If the narrator were introduced to the class at some time it would add a more personal touch."

"There was no immediate involvement in discussions; too, usually none of our questions were answered."

Item 8: Did you feel that the seminars were really interactive (Yes or No) and why?

a) Participants who thought the seminars were interactive:

"Time was given for interaction."

"There were occasions when those on the panel acted as if they were prepared to answer only specific questions and would not be prone to deviate from their prepared answers or topics."

"We had a chance to ask questions and get an answer. Also, most of the questions asked applied to most students in the course which was helpful."

"I enjoyed listening to other people's reactions, questions and interpretations."

"Our site monitor showed enthusiasm, etc. but also good sense and humor, as we all gained."

"Our questions were instantly answered--questions that were certainly relevant--since we asked them."

"Our given questions were answered immediately."

"The answers sent back via teletype were helpful."

"Questions weren't always answered because of the time constraints of the program."

"I really liked the idea of being able to ask someone who is considered to be an authority in a particular area of education some questions about problems I am having or expect to have in teaching."

b) Participants who thought the seminars were not interactive:

"Seminars were the least relevant of all--the most impersonal experience of the class. They were too generalized and repetitive, as I recall."

"The experts didn't really answer our questions."

"Too much repetition."

"The first one or two seemed too contrived--the last two were better than the first two."

"Boring."

"Questions seemed to come from only one or two sites; too, there was not enough time to elaborate on the questions considered by the panel."

Item 9: Participant comments regarding Site Coordinators:

"The site coordinator was helpful in maintaining an adequate pace in the completion of activities."

"The coordinator was helpful; however, he could have been a little more familiar with basic materials used in research work."

"The site coordinator saw that everything needed was there. Also, the site coordinator was helpful in explaining confusing directions."

"The site coordinator was extremely helpful and was able to deliver the needed directions and to motivate us to the point that we could benefit most from the material presented to us."

"There was more than one site coordinator at our site. Each tried to be helpful, but I'm convinced a permanent site coordinator would be more interested and helpful. It would be helpful if materials were available to students beyond the class period,especially for commuters."

"The site coordinator had a good understanding of career education and was able to act as a good resource guide."

"The site coordinator was needed to give the group a sense of cohesiveness plus a feeling of ability to communicate."

"Our site coordinator was most helpful! (He helped in any way when a student was having trouble.)"

"The site coordinator was to coordinate and aid in follow up of the televised lesson, and to guide student projects."

"The site coordinator needs to understand the objectives of the course as well as equipment operation. He needs a talking knowledge of materials at least."

"Because the coordinator took on a bigger role, he was very helpful to us."

"The site coordinator saw that all the equipment was working and that all the students had materials to work with. He also answered any questions we had about the project. I think the site coordinator should be allowed to give some lectures concerning career education in our particular location."

"She was great and very adequate. Would describe her as a feedback and information resource person from main headquarters. I'd say the personality of the site coordinator is vital!"

"Yes, but he needed to know more about the course."

"The site coordinator's role was a facilitator for learning and guide for the tasks that were to be accomplished. He was very helpful! However, less time should be devoted to the teletype, too. The room was too small -- noise overload with teletype. I think this would have been the key to unlock the restrained or narrow attitude of the group. We did use each other for resources."

"Helpful--needs more information to do the job well, though."

"The site coordinator tried to be helpful in most instances. A feeling that even he did not know how to coordinate the program for interest appeal."

APPENDIX 4

RESPONSE FREQUENCIES AND PERCENTAGES FOR THE TEACHING PRACTICES INVENTORY
CEE COURSE
(N_p = 225 Pre-Course, N_f = 131 Follow-up)

Item	Pre-Course	Follow-up
1. Was there a career education program in your school?		
a) Yes	65 (29%)	31 (24%)
b) No	151 (67%)	100 (76%)
c) NR*	9 (4%)	0 (0%)
2. Was your class involved in the program?		
a) Yes	54 (24%)	29 (22%)
b) No	159 (71%)	100 (76%)
c) NR	12 (5%)	2 (2%)
3. Was time taken in your class for career education activities?		
a) Yes	82 (36%)	83 (63%)
b) No	127 (56%)	44 (34%)
c) NR	16 (7%)	4 (3%)
4. Were career education activities incorporated into your curriculum?		
a) Yes	127 (56%)	84 (64%)
b) No	77 (34%)	35 (27%)
c) NR	21 (9%)	12 (9%)
Who in your school developed the career education program?		
5. Guidance counselor?		
a) Yes	36 (16%)	32 (24%)
b) No	188 (84%)	72 (55%)
c) NR	1 (0%)	27 (21%)
6. Teachers?		
a) Yes	74 (33%)	76 (58%)
b) No	150 (67%)	36 (28%)
c) NR	1 (0%)	19 (14%)

*No Response

Item	Pre-Course	Follow-up
7. Principal?		
a) Yes	23 (10%)	43 (33%)
b) No	201 (89%)	65 (50%)
c) NR	1 (0%)	23 (17%)
8. Did the principal discuss career education program development with you?		
a) Yes	55 (24%)	41 (31%)
b) No	156 (69%)	87 (66%)
c) NR	14 (6%)	3 (2%)
9. Did you find that the concept that individuals differ in their interests, abilities, and values was important to career education?		
a) Yes	179 (80%)	117 (89%)
b) No	9 (4%)	7 (5%)
c) NR	37 (16%)	7 (5%)
10. Were hobbies a good source of career education information?		
a) Yes	163 (72%)	104 (79%)
b) No	20 (9%)	21 (16%)
c) NR	42 (19%)	6 (5%)
11. Were you comfortable doing career education projects?		
a) Yes	124 (55%)	107 (82%)
b) No	23 (10%)	9 (7%)
c) NR	78 (35%)	15 (11%)
12. The best source of career education materials is		
a) Books and pamphlets	20 (9%)	25 (19%)
b) Career education kits	47 (21%)	30 (23%)
c) Films and filmstrips	61 (27%)	38 (29%)
d) Records and tapes	4 (2%)	1 (1%)
e) Other sources	49 (22%)	29 (22%)
f) NR	44 (20%)	8 (6%)

Item	Pre-Course	Follow-up
Which of the following techniques did you use?		
13. Explain to students that each person sees a job differently		
a) Yes	87 (39%)	104 (79%)
b) No	138 (61%)	19 (15%)
c) NR	0 (0%)	8 (6%)
14. Have students pick an occupation, tell what it is and then compare answers		
a) Yes	33 (15%)	43 (33%)
b) No	192 (85%)	75 (57%)
c) NR	0 (0%)	13 (10%)
15. Use persons employed in the community as speakers		
a) Yes	93 (41%)	76 (58%)
b) No	132 (59%)	48 (37%)
c) NR	0 (0%)	7 (5%)
16. Introduce students to various types of jobs		
a) Yes	121 (54%)	110 (84%)
b) No	104 (46%)	14 (11%)
c) NR	0 (0%)	7 (5%)
17. Ask students what they want to do when they grow up		
a) Yes	172 (76%)	110 (84%)
b) No	53 (24%)	13 (10%)
c) NR	0 (0%)	8 (6%)
18. Ask students what their fathers do for a living		
a) Yes	153 (68%)	105 (80%)
b) No	72 (32%)	20 (15%)
c) NR	0 (0%)	6 (5%)

Item	Pre-Course	Follow-up
19. Help students to see themselves as worthwhile individuals		
a) Yes	157 (70%)	123 (94%)
b) No	68 (30%)	5 (4%)
c) NR	0 (0%)	3 (2%)
20. Role playing of various jobs		
a) Yes	78 (35%)	65 (50%)
b) No	147 (65%)	59 (45%)
c) NR	0 (0%)	7 (5%)
21. Outside speakers explaining their jobs		
a) Yes	77 (34%)	66 (50%)
b) No	148 (66%)	56 (43%)
c) NR	0 (0%)	9 (7%)
22. Have children's parents serve as information sources about careers		
a) Yes	48 (21%)	60 (46%)
b) No	177 (79%)	63 (48%)
c) NR	0 (0%)	8 (6%)
23. Have students make a chart of your community needs and the occupations that fulfill those needs		
a) Yes	22 (10%)	26 (20%)
b) No	203 (90%)	94 (72%)
c) NR	0 (0%)	11 (8%)
24. Have students write essays on what life would be like without certain jobs		
a) Yes	22 (10%)	33 (25%)
b) No	203 (90%)	87 (66%)
c) NR	0 (0%)	11 (8%)
25. Have students make a list of all the jobs they can think of		
a) Yes	34 (15%)	44 (34%)
b) No	191 (85%)	75 (57%)
c) NR	0 (0%)	12 (9%)

Item	Pre-Course	Follow-up
26. Explain educational requirements of jobs		
a) Yes	89 (40%)	88 (67%)
b) No	136 (60%)	34 (26%)
c) NR	0 (0%)	9 (7%)
27. Have students explore the skills required for jobs they are interested in		
a) Yes	64 (28%)	63 (48%)
b) No	161 (72%)	57 (44%)
c) NR	0 (0%)	11 (8%)
28. Explain what jobs use the educational skills you are teaching		
a) Yes	76 (34%)	77 (59%)
b) No	149 (66%)	45 (34%)
c) NR	0 (0%)	9 (7%)
29. Have students use educational skills in simulated jobs		
a) Yes	29 (13%)	41 (31%)
b) No	196 (87%)	77 (59%)
c) NR	0 (0%)	13 (10%)
30. Techniques other than those above		
a) Yes	31 (14%)	71 (54%)
b) No	194 (86%)	39 (30%)
c) NR	0 (0%)	21 (16%)
In order to gain information about career education which of the following did you use?		
31. Regional career education center		
a) Yes	29 (10%)	38 (29%)
b) No	201 (89%)	73 (56%)
c) NR	1 (0%)	20 (15%)
32. School system career education center		
a) Yes	34 (15%)	37 (28%)
b) No	191 (85%)	70 (53%)
c) NR	0 (0%)	24 (18%)

Item	Pre-Course	Follow-up
33. School career education center		
a) Yes	31 (14%)	36 (28%)
b) No	194 (86%)	69 (53%)
c) NR	0 (0%)	26 (20%)
34. Guidance counselor		
a) Yes	40 (18%)	34 (26%)
b) No	185 (82%)	72 (55%)
c) NR	0 (0%)	25 (19%)
35. School principal		
a) Yes	42 (19%)	39 (30%)
b) No	183 (81%)	66 (50%)
c) NR	0 (0%)	26 (20%)
36. Local industries		
a) Yes	62 (28%)	77 (59%)
b) No	163 (72%)	37 (28%)
c) NR	0 (0%)	17 (13%)
37. Local library		
a) Yes	102 (45%)	88 (67%)
b) No	123 (55%)	30 (23%)
c) NR	0 (0%)	13 (10%)
38. Professional books and journals		
a) Yes	89 (40%)	87 (66%)
b) No	136 (60%)	29 (22%)
c) NR	0 (0%)	15 (12%)
39. College library		
a) Yes	20 (9%)	18 (14%)
b) No	204 (91%)	89 (68%)
c) NR	1 (0%)	24 (18%)
40. College professors		
a) Yes	13 (6%)	14 (11%)
b) No	212 (94%)	90 (69%)
c) NR	0 (0%)	27 (21%)

Item	Pre-Course	Follow-up
41. Information retrieval systems		
a) Yes	6 (3%)	27 (21%)
b) No	219 (97%)	78 (60%)
c) NR	0 (0%)	26 (20%)
42. Other sources of information		
a) Yes	29 (13%)	77 (59%)
b) No	196 (87%)	30 (23%)
c) NR	0 (0%)	24 (18%)
43. Did you use movies and filmstrips concerning career education?		
a) Yes	113 (50%)	84 (64%)
b) No	78 (35%)	39 (30%)
c) NR	34 (15%)	8 (6%)
44. Do you know where to obtain movies and filmstrips concerning career education?		
a) Yes	134 (60%)	105 (80%)
b) No	72 (32%)	18 (14%)
c) NR	19 (8%)	8 (6%)
45. It appeared the students parents wanted career education taught		
a) Yes	68 (30%)	58 (44%)
b) No	59 (26%)	42 (32%)
c) NR	98 (44%)	31 (24%)
46. Did your school system have in-service training sessions for career education techniques?		
a) Yes	44 (20%)	24 (18%)
b) No	154 (68%)	97 (74%)
c) NR	27 (12%)	10 (8%)
47. Did you find standardized tests useful to your teaching procedures?		
a) Yes	59 (26%)	40 (31%)
b) No	103 (46%)	69 (53%)
c) NR	63 (28%)	22 (17%)

Item	Pre-Course	Follow-up
Have you taught in		
48. Team teaching situations		
a) Yes	91 (40%)	59 (45%)
b) No	134 (60%)	62 (47%)
c) NR	0 (0%)	10 (8%)
49. Open classrooms		
a) Yes	44 (20%)	33 (25%)
b) No	181 (80%)	84 (64%)
c) NR	0 (0%)	14 (11%)
50. Traditional classrooms		
a) Yes	187 (83%)	114 (87%)
b) No	38 (17%)	13 (10%)
c) NR	0 (0%)	4 (3%)
51. Resource center		
a) Yes	27 (12%)	28 (21%)
b) No	198 (88%)	89 (68%)
c) NR	0 (0%)	14 (11%)
52. Individual instruction situations		
a) Yes	134 (60%)	95 (73%)
b) No	91 (40%)	30 (23%)
c) NR	0 (0%)	6 (5%)
53. Homogeneous classrooms		
a) Yes	83 (37%)	80 (61%)
b) No	142 (63%)	34 (26%)
c) NR	1 (0%)	17 (13%)
54. Other teaching situations		
a) Yes	18 (8%)	49 (37%)
b) No	206 (92%)	57 (44%)
c) NR	1 (0%)	25 (19%)

Item	Pre-Course	Follow-up
55. During the classroom work periods the noise level in your room was		
a) completely quiet	6 (3%)	5 (4%)
b) whisper noise	83 (37%)	48 (37%)
c) great amount of noise due to enthusiasm	107 (48%)	67 (51%)
d) fairly high because students not interested	9 (4%)	4 (3%)
e) NR	20 (9%)	7 (5%)
56. Were parents involved in school programs?		
a) Yes	90 (40%)	41 (31%)
b) No	123 (55%)	84 (64%)
c) NR	12 (5%)	6 (5%)
57. Students in your school		
a) were interested and enthusiastic	93 (41%)	76 (58%)
b) were mildly interested	104 (46%)	43 (33%)
c) did not appear interested, but did their work	8 (4%)	4 (3%)
d) seemed to be passing time of day	4 (2%)	2 (2%)
e) disliked school	3 (1%)	1 (1%)
f) NR	13 (6%)	5 (4%)
58. Did you define your expectations and write them down in the form of objectives?		
a) Yes	122 (54%)	73 (56%)
b) No	81 (36%)	48 (37%)
c) NR	22 (10%)	10 (8%)
The teaching strategies you used most were		
59. Teaching small groups		
a) Yes	166 (74%)	104 (79%)
b) No	59 (26%)	17 (13%)
c) NR	0 (0%)	10 (8%)
60. Teaching large groups		
a) Yes	109 (48%)	82 (63%)
b) No	116 (52%)	37 (28%)
c) NR	0 (0%)	12 (9%)

Item	Pre-Course	Follow-up
61. Teaching an individual		
a) Yes	132 (59%)	92 (70%)
b) No	93 (41%)	27 (21%)
c) NR	0 (0%)	12 (9%)
62. Using a lesson plan developed by someone else		
a) Yes	32 (14%)	33 (25%)
b) No	193 (86%)	83 (63%)
c) NR	0 (0%)	15 (12%)
63. Developing your own lesson plan		
a) Yes	174 (77%)	118 (90%)
b) No	51 (23%)	6 (5%)
c) NR	0 (0%)	7 (5%)
64. Did you encourage students to help each other?		
a) Yes	202 (90%)	119 (91%)
b) No	8 (4%)	9 (7%)
c) NR	15 (6%)	3 (2%)
65. Did you have students tutor other students?		
a) Yes	179 (80%)	101 (77%)
b) No	27 (12%)	18 (14%)
c) NR	19 (8%)	12 (9%)
66. Which technique did you use with small groups?		
a) lecturing	12 (5%)	3 (2%)
b) serving as a resource person	89 (40%)	45 (34%)
c) do both equally	101 (45%)	64 (50%)
d) other technique	3 (1%)	10 (8%)
e) NR	20 (9%)	9 (7%)

Item	Pre-Course	Follow-up
67. What were majority of lessons based on?		
a) state prepared lesson plan	6 (3%)	2 (2%)
b) system-wide lesson plan	16 (7%)	5 (4%)
c) commercially developed lesson plan	17 (8%)	5 (4%)
d) school-wide lesson plan	5 (2%)	3 (2%)
e) teacher developed lesson plan	153 (68%)	109 (83%)
f) NR	28 (12%)	7 (5%)
68. Did you have budget for classroom supplies and materials?		
a) Yes	150 (67%)	82 (63%)
b) No	62 (28%)	39 (30%)
c) NR	13 (6%)	9 (7%)
69. Did you order supplies and materials for your class?		
a) Yes	180 (80%)	87 (66%)
b) No	31 (14%)	34 (26%)
c) NR	14 (6%)	10 (8%)
70. Does your school have satisfactory supplies, equipment and materials?		
a) Yes	108 (48%)	61 (47%)
b) No	108 (48%)	59 (45%)
c) NR	9 (4%)	11 (8%)
Did your class include		
71. a television		
a) Yes	114 (51%)	79 (60%)
b) No	111 (49%)	48 (37%)
c) NR	0 (0%)	4 (3%)
72. a tape recorder		
a) Yes	153 (68%)	99 (76%)
b) No	72 (32%)	30 (23%)
c) NR	0 (0%)	2 (1%)

Item	Pre-Course	Follow-up
73. a phonograph		
a) Yes	186 (83%)	113 (86%)
b) No	39 (17%)	14 (11%)
c) NR	0 (0%)	4 (3%)
74. an overhead projector		
a) Yes	163 (72%)	91 (70%)
b) No	62 (28%)	34 (26%)
c) NR	0 (0%)	6 (4%)
In which areas does your school need additional staff members?		
75. administrative		
a) Yes	12 (5%)	19 (15%)
b) No	213 (95%)	89 (68%)
c) NR	0 (0%)	23 (17%)
76. supervisory		
a) Yes	21 (9%)	34 (26%)
b) No	204 (91%)	80 (61%)
c) NR	0 (0%)	17 (13%)
77. counseling and guidance		
a) Yes	101 (45%)	85 (65%)
b) No	124 (55%)	32 (24%)
c) NR	0 (0%)	14 (11%)
78. classroom teachers		
a) Yes	82 (36%)	81 (62%)
b) No	143 (64%)	40 (31%)
c) NR	0 (0%)	10 (7%)
79. teacher aides		
a) Yes	136 (60%)	97 (74%)
b) No	89 (40%)	24 (18%)
c) NR	0 (0%)	10 (14%)

Item	Pre-Course	Follow-up
80. medical		
a) Yes	*	63 (48%)
b) No	*	45 (34%)
c) NR	*	23 (18%)
81. How many books are in your school library?		
a) less than 1000	32 (14%)	24 (18%)
b) 1001-2000	45 (20%)	24 (18%)
c) 2001-3000	49 (22%)	19 (15%)
d) 3001-5000	30 (13%)	32 (24%)
e) over 5000	33 (15%)	15 (12%)
f) NR	36 (16%)	17 (13%)
82. Did the guidance counselor supply you with materials which strengthened your program?		
a) Yes	47 (21%)	26 (20%)
b) No	126 (56%)	90 (69%)
c) NR	52 (23%)	15 (11%)
83. Did the state department of instruction supply you with useful materials?		
a) Yes	81 (36%)	43 (33%)
b) No	89 (40%)	63 (48%)
c) NR	55 (24%)	25 (19%)
84. Are you familiar with the ERIC microfiche system?		
a) Yes	48 (21%)	111 (85%)
b) No	163 (72%)	16 (12%)
c) NR	14 (6%)	4 (3%)
85. Do you know the location of an ERIC reader?		
a) Yes	45 (20%)	78 (60%)
b) No	165 (73%)	46 (35%)
c) NR	15 (7%)	7 (5%)
86. Do you have input into curriculum?		
a) Yes	127 (56%)	86 (66%)
b) No	64 (28%)	37 (28%)
c) NR	34 (15%)	8 (6%)

*different item used for pre-course version

Item	Pre-Course	Follow-up
87. Are you encouraged to experiment with different instructional techniques?		
a) Yes	151 (67%)	84 (64%)
b) No	53 (24%)	40 (31%)
c) NR	21 (9%)	7 (5%)
88. Do students have input into curriculum development?		
a) Yes	125 (56%)	79 (60%)
b) No	70 (31%)	44 (34%)
c) NR	30 (13%)	8 (6%)
89. Did you take part in curriculum development committees?		
a) Yes	101 (45%)	52 (40%)
b) No	108 (48%)	68 (52%)
c) NR	16 (7%)	11 (8%)
When faced with an instructional problem I sought the help of		
90. a guidance counselor		
a) Yes	31 (14%)	21 (16%)
b) No	194 (86%)	76 (58%)
c) NR	0 (0%)	34 (26%)
91. a fellow teacher		
a) Yes	153 (68%)	102 (78%)
b) No	72 (32%)	19 (15%)
c) NR	0 (0%)	10 (7%)
92. the principal		
a) Yes	119 (53%)	86 (66%)
b) No	106 (47%)	32 (24%)
c) NR	0 (0%)	13 (10%)
93. the area supervisor		
a) Yes	67 (30%)	48 (37%)
b) No	158 (70%)	64 (49%)
c) NR	0 (0%)	19 (14%)

Item	Pre-Course	Follow-up
94. solved the problem myself		
a) Yes	135 (60%)	97 (74%)
b) No	90 (40%)	23 (18%)
c) NR	0 (0%)	11 (8%)
95. Is curriculum revision needed in your school system?		
a) Yes	156 (69%)	90 (69%)
b) No	40 (18%)	23 (18%)
c) NR	29 (13%)	18 (13%)
96. Did you see a need for curriculum revision in your school system but were not able to help in its revision?		
a) Yes	101 (45%)	37 (28%)
b) No	91 (40%)	72 (55%)
c) NR	33 (15%)	22 (17%)
97. Did you see a need for revision and were able to help?		
a) Yes	88 (36%)	54 (41%)
b) No	104 (40%)	52 (40%)
c) NR	40 (18%)	25 (19%)
98. Is there enough time in the day for lesson preparation?		
a) Yes	63 (28%)	30 (23%)
b) No	145 (64%)	92 (70%)
c) NR	17 (8%)	9 (7%)
How did you share teaching ideas with fellow teachers?		
99. informal discussions		
a) Yes	201 (89%)	113 (80%)
b) No	24 (11%)	10 (8%)
c) NR	0 (0%)	8 (6%)

Item		Pre-Course	Follow-up
100.	leader of inservice teacher training program		
	a) Yes	21 (9%)	19 (15%)
	b) No	204 (91%)	76 (58%)
	c) NR	0 (0%)	35 (27%)
101.	participated in inservice teacher training program		
	a) Yes	85 (38%)	58 (44%)
	b) No	140 (62%)	55 (42%)
	c) NR	0 (0%)	18 (14%)
102.	coordinated a curriculum development project		
	a) Yes	14 (6%)	16 (12%)
	b) No	211 (94%)	93 (71%)
	c) NR	0 (0%)	22 (17%)
103.	participated in a curriculum development project		
	a) Yes	50 (22%)	45 (34%)
	b) No	175 (78%)	67 (51%)
	c) NR	0 (0%)	19 (15%)
104.	other activities not listed		
	a) Yes	14 (6%)	44 (34%)
	b) No	211 (94%)	52 (40%)
	c) NR	0 (0%)	34 (26%)
	If you selected one of the activities in items 9S-104, select the area(s) toward which those activities were aimed.		
105.	Career education		
	a) Yes	65 (29%)	67 (51%)
	b) No	160 (71%)	38 (29%)
	c) NR	0 (0%)	26 (20%)
106.	Reading		
	a) Yes	133 (59%)	86 (66%)
	b) No	92 (41%)	25 (19%)
	c) NR	0 (0%)	20 (15%)

Item	Pre-Course	Follow-up
107. Mathematics		
a) Yes	86 (38%)	65 (50%)
b) No	139 (62%)	37 (28%)
c) NR	0 (0%)	29 (22%)
108. Language skills		
a) Yes	103 (46%)	76 (58%)
b) No	122 (54%)	34 (26%)
c) NR	0 (0%)	21 (16%)
109. Social studies		
a) Yes	71 (32%)	42 (32%)
b) No	154 (68%)	52 (40%)
c) NR	0 (0%)	37 (28%)
110. Natural sciences		
a) Yes	*	26 (20%)
b) No	*	61 (47%)
c) NR	*	44 (33%)
111. Industrial arts / home economics		
a) Yes	*	15 (12%)
b) No	*	80 (61%)
c) NR	*	35 (27%)
112. Other areas		
a) Yes	29 (13%)	48 (37%)
b) No	195 (87%)	50 (38%)
c) NR	1 (0%)	33 (25%)
Factors inhibiting you from carrying out curriculum revision were		
113. Lack of self confidence		
a) Yes	16 (7%)	16 (12%)
b) No	209 (93%)	67 (51%)
c) NR	0 (0%)	47 (37%)

*items not on pre-course version

Item		Pre-Course	Follow-up
114.	Lack of knowledge and skills		
	a) Yes	42 (19%)	30 (23%)
	b) No	183 (81%)	58 (44%)
	c) NR	0 (0%)	43 (33%)
115.	Lack of administrative support		
	a) Yes	31 (14%)	25 (19%)
	b) No	194 (86%)	52 (40%)
	c) NR	0 (0%)	54 (41%)
116.	Lack of money		
	a) Yes	90 (40%)	72 (55%)
	b) No	135 (60%)	35 (27%)
	c) NR	0 (0%)	24 (18%)
117.	Lack of resources		
	a) Yes	75 (33%)	52 (40%)
	b) No	150 (67%)	45 (34%)
	c) NR	0 (0%)	34 (26%)
118.	Lack of fellow teacher support		
	a) Yes	27 (12%)	29 (22%)
	b) No	198 (88%)	64 (49%)
	c) NR	0 (0%)	38 (29%)
119.	Lack of time		
	a) Yes	105 (47%)	66 (50%)
	b) No	120 (53%)	37 (28%)
	c) NR	0 (0%)	28 (22%)
120.	Other factors		
	a) Yes	8 (4%)	34 (26%)
	b) No	217 (96%)	44 (34%)
	c) NR	0 (0%)	53 (40%)

Item	Pre-Course	Follow-up
Factors encouraging you to carry out curriculum revision were		
121. Confidence in self		
a) Yes	74 (33%)	66 (50%)
b) No	151 (67%)	31 (24%)
c) NR	0 (0%)	34 (26%)
122. Sufficient knowledge and skills		
a) Yes	54 (24%)	66 (50%)
b) No	171 (70%)	30 (23%)
c) NR	0 (0%)	35 (27%)
123. Adequate administrative support		
a) Yes	62 (28%)	35 (27%)
b) No	163 (72%)	53 (41%)
c) NR	0 (0%)	43 (32%)
124. Adequate money		
a) Yes	24 (11%)	18 (14%)
b) No	201 (89%)	56 (43%)
c) NR	0 (0%)	57 (33%)
125. Adequate resources		
a) Yes	36 (16%)	28 (21%)
b) No	189 (84%)	46 (35%)
c) NR	0 (0%)	57 (44%)
126. Adequate fellow teacher support		
a) Yes	64 (28%)	49 (37%)
b) No	161 (72%)	40 (31%)
c) NR	0 (0%)	42 (32%)
127. Sufficient time		
a) Yes	22 (10%)	20 (15%)
b) No	203 (90%)	59 (45%)
c) NR	0 (0%)	52 (40%)

Item	Pre-Course	Follow-up
128. Other factor		
a) Yes	8 (44%)	32 (24%)
b) No	215 (96%)	39 (30%)
c) NR	0 (0%)	60 (46%)
129. Was your school departmentalized?		
a) Yes	*	45 (34%)
b) No	*	55 (42%)
c) NR	*	31 (24%)
Did you plan career education activities on		
130. an individual basis?		
a) Yes	*	71 (54%)
b) No	*	47 (36%)
c) NR	*	13 (10%)
131. an intra departmental level?		
a) Yes	*	18 (14%)
b) No	*	77 (59%)
c) NR	*	36 (27%)
132. a school wider level?		
a) Yes	*	13 (10%)
b) No	*	80 (61%)
c) NR	*	38 (29%)
133. Was there inter department cooperation in curriculum development?		
a) Yes	*	52 (40%)
b) No	*	32 (24%)
c) NR	*	47 (36%)
134. Did your department coordinator encourage curriculum development?		
a) Yes	*	38 (29%)
b) No	*	47 (36%)
c) NR	*	46 (35%)

*items not on previous version

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